

Quality Assurance

Masters, Postgraduate Diploma, Postgraduate Certificate in Geoscience Research

Programme Specification: Postgraduate

Information for students: the programme specification is the definitive document summarising the structure and content of your degree programme. It is reviewed and updated every year as part of Keele’s Annual Programme Review process. The document aims to clarify to potential and current students what you can expect from the study of the subject over the course of your programme.

Names of programme(s):	MSc Geoscience Research
Mode of study:	Full-time Part-time
Framework of Higher Education Qualification (FHEQ) level of final award:	Level 7 (Postgraduate Masters)
Duration:	One year full-time Two years part-time

Details of professional, statutory and regulatory body (PSRB) (If appropriate): N/A

External Examiner name: See www.keele.ac.uk/qa/externalexaminers for more details.

1. What is the philosophy of the Programme?

The overall aim of the MSc Geoscience Research at Keele University is to provide the opportunity for students to acquire postgraduate-level generic and subject-specific research skills across a broad range of disciplines within the Geosciences and related disciplines, providing a strong educational background for a research career in either academia or industry. Students are supported in their development of these skills through taught group sessions and one-to-one discussions with their research project supervisors. Geography, Geology and the Environment at Keele conducts internationally recognised fundamental and applied research in many areas in the Geosciences and related disciplines, ranging from applied and environmental geophysics to environmental chemistry/pollution, igneous petrology, palaeoceanography, Quaternary environments, palaeontology, energy, sedimentology, structural geology, soil system science and volcanology. Students on the MSc Geoscience Research programme will benefit from our expertise in these areas and our collaborative research links that provide the foundation for placement opportunities for UK students in institutions across Europe and North America, along with industrial placements based primarily in the UK. The international outlook of the course with its inherent advantages in a competitive international job market is also exemplified by opportunities, where appropriate, to take a modern language class or academic English for postgraduate students, with one-to-one support sessions open to non-native English speakers. Students taking research projects in Europe are currently eligible for European Funding under the ERASMUS+ Scheme and students are encouraged to complete a ‘EUROPASS’ <https://europass.cedefop.europa.eu> to record their European mobility activity.

In addition to the development of discipline-specific research and technical skills, students will be supported in enhancing key professional and employability skills through developing critical thinking, innovation, reflective writing, autonomous learning and written and oral presentation skills: all vital skills for future employment, lifelong learning and continued professional development irrespective of the student's chosen career path.

The focus of the MSc Geoscience Research is learning through research and the substantial 'hands on' research training along with the flexibility for the students to choose Keele-based research projects or internationally-based research projects (depending on whether they are a UK or Overseas student) makes this a distinctive course in the UK Higher Education Sector.

The Intended Learning Outcomes of the MSc Geoscience Research reflect what successful students should know, understand or to be able to do by the end of the programme. Programme specific learning outcomes are presented in section 3, but to summarise, by the end of the MSc Geoscience Research programme, students should be able to:

- demonstrate Geoscience (and related disciplines) knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of the chosen research area in Geosciences;
- critically evaluate current research and advanced scholarship in their area of Geoscience;
- demonstrate originality in the application of knowledge, and how established techniques of research and enquiry are used to create and interpret knowledge in Geoscience;
- evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses;
- demonstrate a high level of scientific skills and knowledge, and transferable skills, in a UK-based or international workplace setting;
- deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to both specialist and non-specialist audiences;
- demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level;
- demonstrate the qualities and transferable skills necessary for employment requiring:
 - the exercise of initiative and personal responsibility
 - decision-making in complex and unpredictable situations
 - the independent learning ability required for continuing professional development.

Engagement with this programme will enable students to further develop their intellectual, personal and professional capabilities. At Keele, these are 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. Whilst students will undoubtedly have already developed these skills and abilities to varying degrees, such existing capabilities will be deepened and enriched. The educational programme and learning environment are designed to help students to develop further as well-rounded postgraduates capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life they engage in during and after their studies at Keele. Please refer to the programme webpage at <https://www.keele.ac.uk/study/postgraduatestudy/postgraduatecourses/geoscience-research/> for a

statement of how the Keele Graduate Attributes can be attained through full engagement in the programme and other educational opportunities at Keele.

The opportunity for Home (UK) students to undertake the research project in an international university or organisation, along with international students being based at Keele University, fits well with the Internationalisation focus of Keele University.

2. How is the Programme taught?

The programme is delivered through a variety of learning and teaching activities designed to develop research and professional skills including lectures, tutorials, workshops, seminars, practical/laboratory classes, problem-based learning, directed reading and independent study and project work, individual presentations and linked discussion, in addition to one-on-one meetings/discussions with individual research supervisors. Though there are taught components to the course, there is a strong focus on student-led learning and research with support from teaching staff to help develop independent research skills and technical skills. All students are expected to engage in independent study for the duration of the programme.

Modules will focus on generic research skills such as academic writing, critical paper evaluations, reviewing literature, data analysis and presentation skills, oral presentation skills and research design and management, alongside specific skills (particularly focussing on methodology) in their chosen area of Geoscience. This should adequately prepare the student for their dissertation research project. Students going on international placement or international students carrying out their project at Keele University will have appropriate training in language and cultural awareness.

As such, the programme provides the opportunity to:

- Develop a structured approach to the design and management of projects including consideration of ethics, grant application and project planning through a series of lectures and small group activities and discussions.
- Share best practice and develop communication and group collaboration skills through a series of student-led talks.
- Acquire advanced laboratory competencies and analytical skills appropriate to Geoscience which will be acquired through working in a research environment at Keele.
- Consider the application of new or existing knowledge to novel, up-to-date problems within the chosen discipline or in new innovative contexts through seminars and group activities.
- Develop scientific critique, writing and presentational skills appropriate for a career in research in academia or industry.

The dissertation research project will allow students to apply their generic and specific skills acquired earlier in the programme and develop advanced research, practical and analytical skills, and provide an opportunity to work alongside experts either at Keele University or with an international partner or external organisation. This provides excellent research training within the specialist area and allows a range of employability skills to be developed.

The Keele Learning Environment (KLE) will provide a virtual resource to support learning and teaching activities, enhance student development and provide a forum for the exchange of ideas and discussion of issues that may arise during programme delivery.

The teaching staff comprise a number of expert academics within Geography, Geology and the Environment (GGE) at Keele University with active research interests in a range of scientific disciplines. They are supported by leading

experts in that discipline located at overseas institutes, governmental or industrial venues, as appropriate. The teaching and research profiles of the staff that currently deliver and support the MSc Geoscience Research programme can be found at: <https://www.keele.ac.uk/gge/ourpeople/>.

The GGE academic staff involved in the MSc Geoscience Research have expertise and interests in all major areas of the Geosciences as well as vocational disciplines such as computing and consultancy. In addition to the members of the programme team who deliver and coordinate individual modules, other GGE staff support the MSc Geoscience Research through research project supervision at Keele and professional and technical support, along with the provision of international and industry placement opportunities for students.

All academic staff are active researchers and many have a distinguished track record in publications, the generation of research 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 the Geological Society of London committees). Additionally, many staff contribute to widening participation and science outreach activities, and have demonstrated innovation and good practice in teaching and learning to take account of the diverse needs and disabilities of all students.

3. What is the Structure of the Programme?

The MSc Geoscience Research programme runs full-time over one full year (with a September or January start) with three semesters; Semester 1 starting in September/January, Semester 2 starting in January/May and Semester 3 starting in June/September. Alternatively, students can take the programme part-time with a January or September start (from 2020), completing the ESC-40049 Research Skills training in Semester 1 and continuing work on other modules and the research project module over the following years.

The programme comprises four core modules designed to develop research skills: the Research Skills and Literature Review module run in Semester 1 (or equivalent for part-time students), the Research Design and Management, and Dissertation module runs across semesters 2 and 3. In addition to these four cores modules, students will take an optional module (either Geoscience-related or a modern language). The structure of the programme is designed to develop generic research skills, e.g. critical reading, thinking and reflective writing, scientific writing, scientific communication (written and oral) and project design, along with subject-specific research skills such as laboratory and/or field methods and data analysis and interpretation.

The structure of the full-time MSc Geoscience Research programme is shown below and is a 180 credit module delivered over three semesters. The overall structure is similar for all students, with 165 credits split between four compulsory modules across semesters 1, 2 and 3 and the remaining 15 credits depending on: A) whether the student is a home (UK) student or an international student; and B) whether the research project will be carried out at Keele University, another European country (with students receiving ERASMUS funding) or in a non-European country. Students who are non-native English speakers may be required to take additional language support – this can be done as part of the 180 credits or additional to the 180 credits – see below.

All students should discuss option choices with their programme director and project supervisor

FULL TIME (SEPTEMBER or JANUARY START)

Module	Period
ESC-40049: Research Skills – 30 credits	SEM 1
<i>For UK students with an international-based research project:</i> a) Modern language module or Geoscience option module* <i>For students taking an industrial placement:</i>	SEM 1 <u>or</u> SEM 2 (or SEM 1 and SEM 3 for January starts)

<p>b) Geoscience option module or modern language module **</p> <p><i>For UK students with a Keele-based research project:</i></p> <p>b) Geoscience option module or modern language module **</p> <p><i>For International students (usually based at Keele):</i></p> <p>c) Geoscience option module or modern language module*** OR</p> <p>ENL-40001: Academic English for PG Students***</p> <p>All modules choices are 15 credit modules</p>	(see footnotes)
ESC-40042: Literature Review – 15 credits	SEM 1 (or equivalent for part-time students)
ESC-40046: Research Project Design and Management – 30 credits	SEM 2-3 (or equivalent for part-time students)
ESC-40044: Dissertation – 90 credits	SEM 2-3 (or equivalent for part-time students)

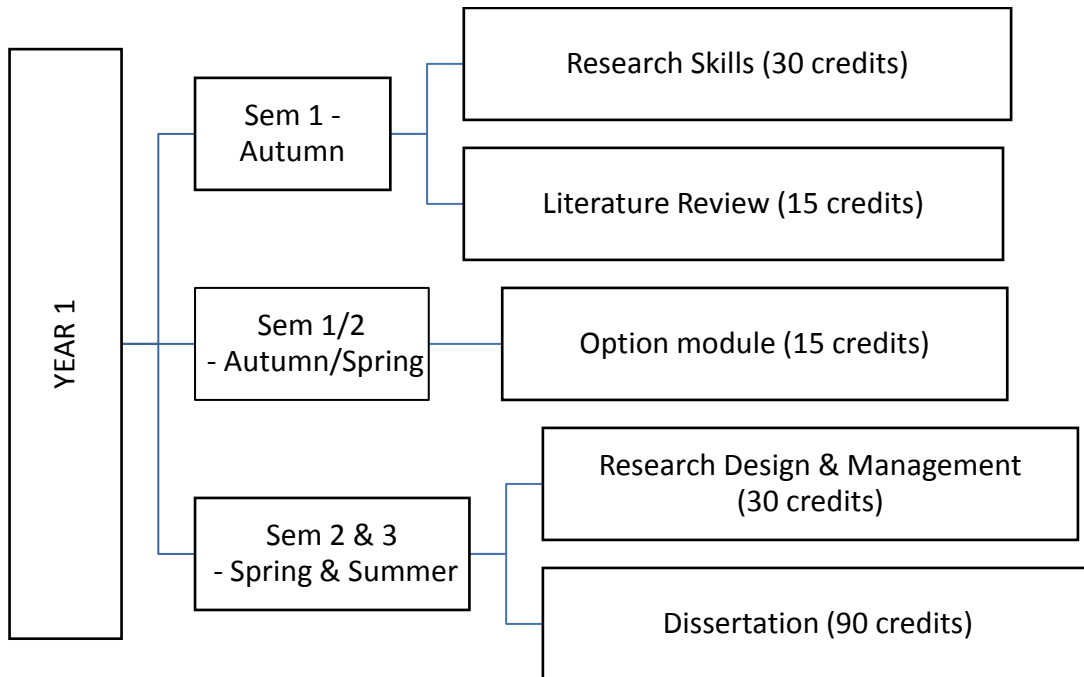
Students going to a placement overseas **normally take an appropriate modern language module. For languages not offered routinely by the Language Centre, students may take module MLX-10004: Language and Culture for International Placements, if available. Students may, as an alternative, take ONE Geoscience (level 7) option module relevant to their research area, if available. This choice should be discussed with the project supervisor.*

***Students carrying out their project at Keele University or with an industrial partner choose ONE Geoscience (level 7) option module relevant to their research area or, alternatively, modern language module. This choice should be discussed with the project supervisor.*

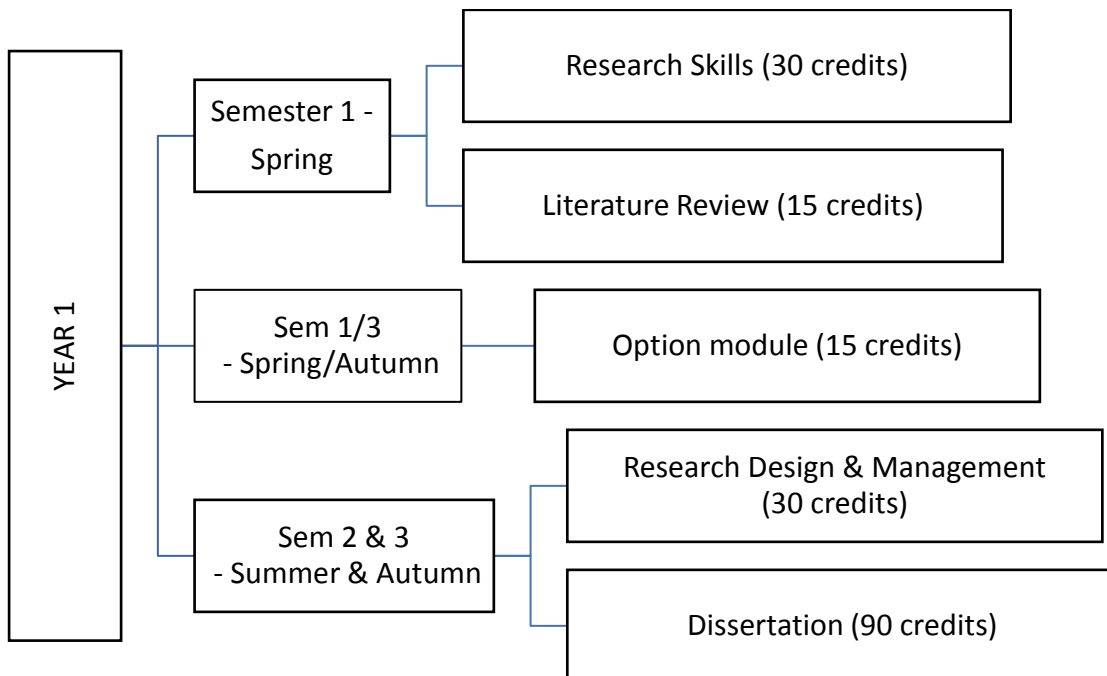
****International students will have a diagnostic language assessment by the Language Centre. Where a student is evaluated by the Language Centre as needing Academic English support via module ENL-40001: Academic English for PG Students, the student can either elect to take ENL-40001 as a module option contributing to the overall course credits (i.e. 15 credits of 180 credits) **or** take a Geoscience (level 7) option module to contribute to their overall course credits and take ENL-40001 as an additional module (so 195 credits are taken overall). Native or near-native English speaking international students may, as an alternative, normally take ONE Geoscience (level 7) option module relevant to their research area.*

The course programme may vary depending on whether the student is UK or international (see above), and whether the student is full time or part-time. The structures are as follows:

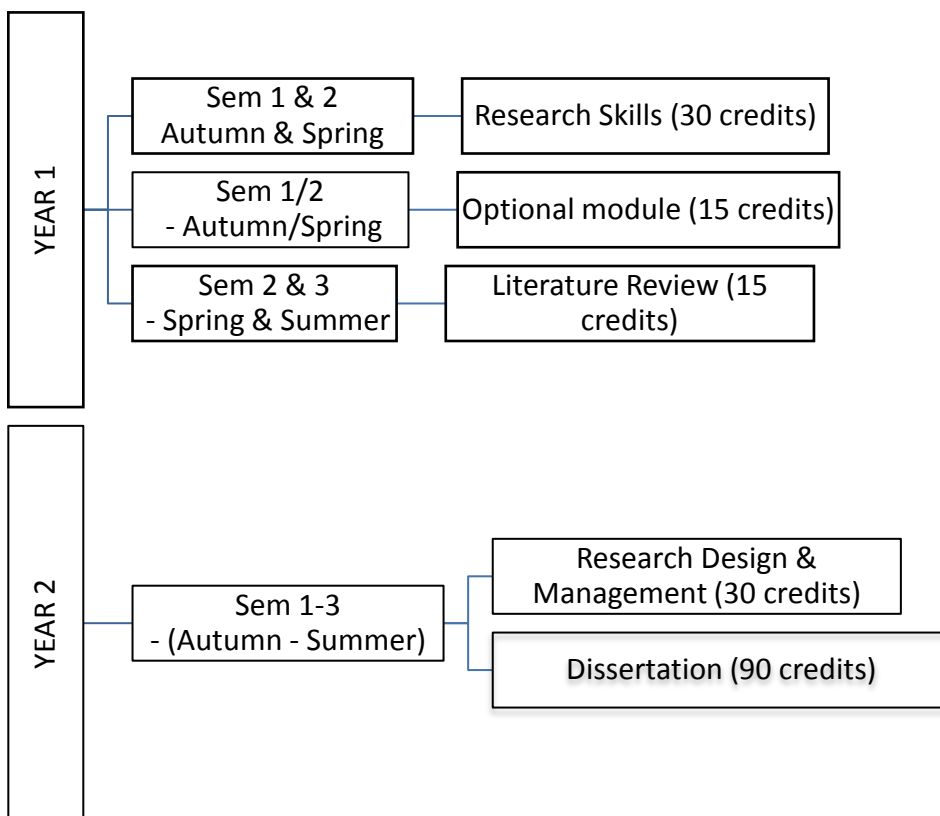
FULL-TIME SEPTEMBER START



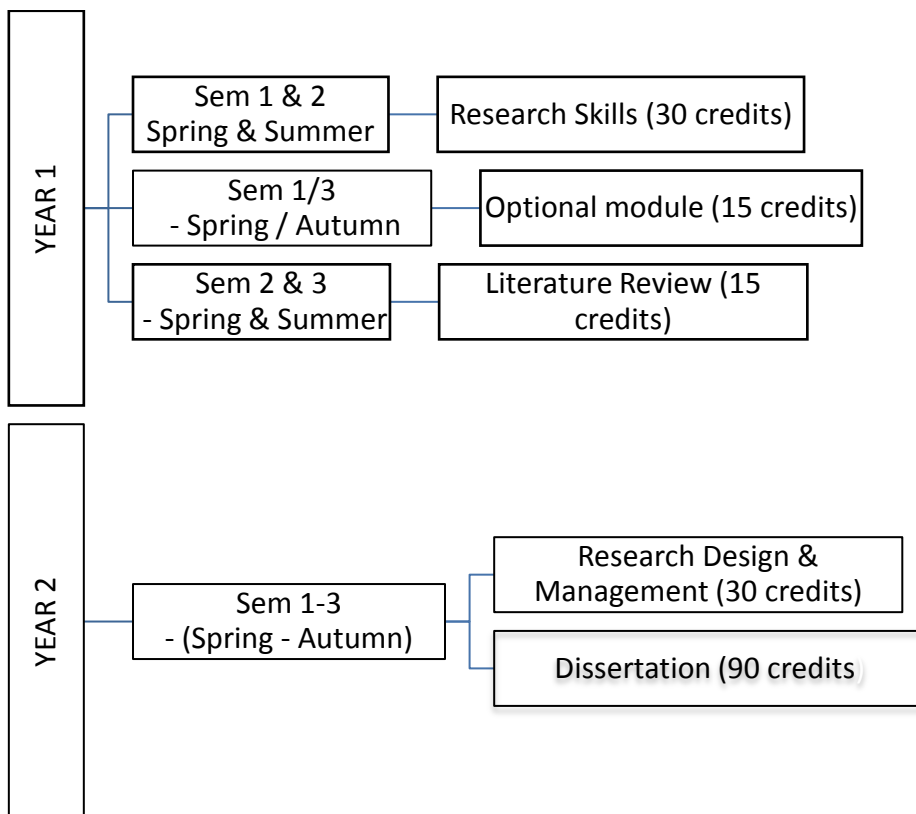
FULL-TIME JANUARY START



PART-TIME SEPTEMBER START



PART-TIME JANUARY START



The programme content is as follows:

1) Module: Research Skills – ESC-40049 (30 Credits)

Taken by all MSc Geoscience Research students and also available to other postgraduate students in the Faculty of Natural Sciences. This module aims to develop the student's generic and specific research skills required for carrying out their specialized research project, and includes for example: critical reading, thinking and reflective writing; scientific writing; scientific communication (written and oral); research management; and data analysis. Students will also begin to learn the techniques needed to carry out their research project under guidance from their supervisor, and work as a team to research and communicate a 'grand challenge' within Geography, Geology and the Environment.

2) A) Modern Language module (15 credits)

This module prepares students for the linguistic and cultural challenges they are likely to encounter whilst undertaking their research project in their placement country or in employment. Language modules focus on the development of all four skills (writing, reading, listening and speaking) as well as cultural awareness. Students carrying out their research project in a European country and receiving ERASMUS funding **are advised to** take an appropriate language module, or sign up for an Online Linguistic Support (OLS) module via Keele University's Global Education Team. Students carrying out their research project in a non-European country, a European English-speaking country (e.g. Ireland) or at Keele University can choose any suitable language module.

OR

B) Academic English for Postgraduate Students – ENL-40001 (15 credits)

An advanced English module for international students who are undertaking postgraduate study at Keele University and have been evaluated as needing academic English support by the Language Learning Unit. The module develops the specific vocabulary, writing, critical reading, oral communication and study skills needed for success with academic assignments at postgraduate level. A student's placement onto the correct level of Academic English is based on a diagnostic language assessment on arrival. Native or near-native English-speaking international students may, as an alternative, be required to take ONE Geoscience (level 7) option module relevant to their research area.

OR

C) Appropriate (Level 7) Geoscience module (15 credits)

Students may take ONE Geoscience option module depending on their status on entry to the MSc programme (i.e. either a UK student taking a placement at Keele University, a non-European university or a European English-speaking country, or an overseas student who has been assessed as not needing the Academic English for Postgraduates module, ENL-40001). Keele University Geography, Geology and the Environment graduates are prohibited from retaking modules as part of the MSc Geoscience Research. Keele University BSc/BA graduates are not allowed to take FHEQ level 7 equivalents of FHEQ level 6 modules they have already taken as part of their undergraduate degree course. Extra costs may apply for any fieldwork or fieldtrips associated with these modules.

Modules (subject to availability – semesters shown) are shown below. Keele University graduates cannot take FHEQ level 7 equivalents of completed FHEQ level 6 modules - the table shows barred combinations to Keele Graduates.

Module No.	Module Title	Semester	Barred combinations for Keele graduates – Level 7 modules cannot be taken if students have completed these L6 modules
ESC-40007	Spatial Geoscience Data Analysis (runs over semesters 1 and 2; not available for students taking placement overseas)	1-2 (Autumn-Spring)	
ESC-40015	Natural Hazards	1 (Autumn)	ESC-30009 (Natural Hazards)
ESC-40017	Glaciers and Glacial Geomorphology	1 (Autumn)	ESC-30006 (Glaciers and Glacial Geomorphology)
ESC-40018	Global Environmental Change	1 (Autumn)	ESC-30018 (Global Environmental Change)
ESC-40026	Economic Geology	1 (Autumn)	ESC-30028 (Economic Geology)
ESC-40034	An Introduction to Sustainable Technologies	1 (Autumn)	--
ESC-40038	Exploration Geophysics for the Hydrocarbon Industry	1 (Autumn)	ESC-30036 (Exploration Geophysics for the Hydrocarbon Industry)
ESC-40056	Applied GIS	1 (Autumn)	ESC-30006 (Applied GIS)
ESC-40060	Climate Change Science	1 (Autumn)	-
ESC-40031	Clean & Green Technologies I: Power from above the Earth	1 (Autumn)	-
ESC-40058	Environmental (Clean) Technology	1 (Autumn)	ESC-30040 (Environmental (Clean) Technology)
ESC-40032	Clean & Green Technologies II: Power from beneath the Earth	2 (Spring)	-
ESC-40019	Water Resources	2 (Spring)	ESC-30020 (Water Resources)
ESC-40020	Hydrological and Engineering Geology	2 (Spring)	ESC-30022 (Hydrological and Engineering Geology)
ESC-40023	Micropalaeontology: Principles and Applications	2 (Spring)	ESC-30025 (Micropalaeontology: Principles and Applications)
ESC-40024	Structure and Geodynamics	2 (Spring)	ESC-30008 (Structure and Geodynamics)
ESC-40027	Advanced Topics in Sedimentology	2 (Spring)	ESC-30034 (Advanced Topics in Sedimentology)

ESC-40030	Case Studies in Sustainability	2 (Spring)	-
ESC-40036	Volcanic and Magmatic Processes	2 (Spring)	ESC-30033 (Volcanic and Magmatic Processes). Can only be taken by students with related projects
ESC-40040	Coastal Environments	2 (Spring)	ESC-30027 (Coastal Environments)
ESC-40041	Petroleum Geology	2 (Spring)	-

3) Literature Review module – ESC-40042 (15 credits)

Taken by all MSc Geoscience Research students. The module is designed to develop the student's information literacy and skills in searching for, selecting and critically evaluating peer-reviewed research literature relevant to their MSc research dissertation and then synthesising this information into a literature review. Regular seminar/tutorial meetings with the supervisor will develop the student's confidence in discussing and critiquing science and scientific issues.

4) Research Project Design and Management module – ESC-40046 (30 credits)

Taken by all MSc Geoscience Research students. This module aims to build on generic and specific training to support students to successfully manage their research and career through reflective practice, research training activities carried out throughout the year, and a poster presentation of preliminary results. The content of the module will be delivered via a combination of one-to-one meetings with the project supervisor(s), independent research and self-learning techniques.

5) Dissertation module – ESC-40044 (90 credits)

Taken by all MSc Geoscience Research students. The module aims to build upon and specific research skills acquired in accompanying modules to communicate the methods, results and conclusions of the MSc research project in the form of a 20,000 – 25,000 word (or equivalent) dissertation.

The intended learning outcomes, derived from the overall programme aims stated in section 1 and the assessment of whether these intended learning outcomes have been achieved by the student, are as follows:

Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Learning Outcome) used
1. Demonstrate systemic project management skills incl. consideration of ethics, applications for funding and data management	<ul style="list-style-type: none"> • ESC-40049 Research Skills • ESC-40046 Research Project Design and Management • ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Group blog ○ Research proposal ○ Oral presentation ○ Dissertation ○ Poster presentation
2. Develop a critical awareness of current issues and important insights appropriate to research discipline	<ul style="list-style-type: none"> • ESC-40049 Research Skills • ESC-40042 Literature Review • ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Group Blog ○ Literature review ○ Dissertation ○ Poster Presentation
3. Integrate complex knowledge into professional written communication	<ul style="list-style-type: none"> • ESC-40049 Research Skills • ESC-40042 Literature Review • ESC-40044 Dissertation • ESC-40046 Research Project Design and Management 	<ul style="list-style-type: none"> ○ Group Blog ○ Literature review ○ Dissertation ○ Poster presentation

4. Critically evaluate current literature appropriate to research discipline	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC-40042 Literature Review ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Group blog ○ Literature review ○ Research proposal ○ Dissertation
5. Apply a comprehensive understanding of the analytical approach to new scientific problems	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research proposal ○ Dissertation
6. Manage practical project work effectively	<ul style="list-style-type: none"> ● ESC-40046 Research Project Design and Management ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Poster presentation ○ Dissertation
7. Use scientific research principles to develop research questions, or hypotheses	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research proposal ○ Oral presentation ○ Dissertation
8. Use scientific research principles to select appropriate techniques of experimental design and analysis to research questions or hypotheses	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC-40046 Research Project Design and Management ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research proposal ○ Oral presentation ○ Dissertation ○ Poster presentation
9. Report the results of an empirical study, applying appropriate skills of presentation, interpretation and discussion of findings.	<ul style="list-style-type: none"> ● ESC-40046 Research Project Design and Management ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Poster presentation ○ Dissertation
10. Demonstrate independent laboratory or field competencies	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC- 40044 Dissertation 	<ul style="list-style-type: none"> ○ Dissertation
11. Evaluate complex scientific data	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC-40046 Research Project Design and Management ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Group blog ○ Poster presentation ○ Dissertation
12. Demonstrate self-direction and dedication to independent learning	<ul style="list-style-type: none"> ● ESC-40049 Research Skills ● ESC-40046 Research Project Design and Management ● ESC-40042 Literature Review ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research Proposal ○ Oral presentation ○ Group Blog ○ Literature review ○ Dissertation
13. Demonstrate effective time management and work to deadlines	<ul style="list-style-type: none"> ● ESC-40046 Research Project Design and Management ● ESC-40049 Research Skills ● ESC-40042 Literature Review ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research Proposal ○ Group Blog ○ Oral presentation ○ Reflective Portfolio ○ Poster presentation ○ Literature review ○ Dissertation
14. Demonstrate self-direction and independence in implementing and managing academic activities	<ul style="list-style-type: none"> ● ESC-40046 Research Project Design and Management ● ESC-40049 Research Skills ● ESC-40042 Literature Review ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research Proposal ○ Group Blog ○ Literature review ○ Dissertation ○ Poster presentation ○ Reflective Portfolio
15. Demonstrate innovation and originality in the understanding and application of new knowledge	<ul style="list-style-type: none"> ● ESC-40046 Research Project Design and Management ● ESC-40049 Research Skills ● ESC-40044 Dissertation 	<ul style="list-style-type: none"> ○ Research Proposal ○ Oral presentation ○ Poster presentation ○ Dissertation

Exit awards

In order to obtain an MSc degree, students are required to obtain 180 credits, including a 90 credit dissertation/project. Since the aim of the course is to provide students with the necessary generic and subject specific skills to enable them to follow a career in research or industry, the dissertation/research project is the major route by which these skills will be obtained i.e. via 'on the job' training. A Postgraduate Certificate (PGCert) will be awarded to students who have failed the Dissertation module but successfully complete 60 credits (of which 40 credits must be at FHEQ level 7). A Postgraduate Diploma (PGDip) is available to students who pass the Dissertation module (90 credits) and successfully complete 120 credits.

4. How is the Programme assessed?

This programme's varied assessment strategy ensures the student develops employability skills, and research and academic skills, appropriate for a career in research or industry. The assessment design is based on several key principles that promote independent learning, student autonomy and responsibility for personal learning, and the development of innovation and originality within Geosciences, Geography and Environmental Science.

The **Research Skills module** is an integral core module in the programme comprising of taught sessions in key research skills such as research design, critical reading and thinking, data analysis and statistics, health and safety, risk assessment and ethics, scientific writing and presentation skills. Research design and communication are key skills in both academia and industry, so students will have their research skills assessed by an **oral presentation** where feedback provided by academic staff will be used to refine their **research proposal**. Group work, clear communication and a holistic awareness of key challenges in the discipline are also key employability skills in both industry and academia: students will work together to research and communicate a key societal challenge within the Geography, Geology and the Environmental discipline through a **website article or blog**.

The Literature Review module requires students to critically appraise current literature and integrate their new knowledge into a structured argument and is assessed by a **literature review**. This will develop the student's information literacy and skills in searching for, selecting and critically evaluating peer-reviewed research literature relevant to their MSc research dissertation and then synthesising this information into a literature review. Information literacy and being able to critique information are important skills in both research and industry. Feedback will be given via regular seminar/tutorial meetings with the supervisor helping to develop the student's confidence in discussing and critiquing science and scientific issues.

The ability to critically reflect on skills and experiences and then formulate a strategy for progression is a key learning skill and employability skill. In the Research Project Design and Management module students will reflect on their learning and progress, and appraise their skills through a skills audit to identify areas of potential development. This reflective approach promotes an integrated approach to theoretical knowledge, understanding and practical implications of their work alongside their personal thoughts and experiences, and feeds into employability skills as reflection is key tool employed by practicing professionals to evidence their professional development. This module has a strong employability focus and is assessed by: i) a **reflective portfolio** comprising a reflective report, a skills audit and a CV and cover letter; and ii) a **poster** presenting preliminary results and ideas. Students will reflect on feedback provided by the academic team and use this feedback to improve their dissertation.

Students taking a placement in a country which does not speak English as a first language, or international students identified as needing support in Academic English, have the option to take an appropriate language course, or online language support module, which will develop the student's skills in a second language and help prepare them for their placement as part of ESC-40044 (Dissertation), or increase competence in English for international students undertaking their project at Keele University.

The Dissertation module is assessed by a 20,000 – 25,000 word (or equivalent) master's **thesis/dissertation** and represents the culmination of the programme, providing an opportunity for students to put together a number of

key learning outcomes from across the programme and to begin to take true responsibility for the formulation, management, conductance and final interpretation and presentation of a new piece of scientific research.

The pass mark in each module is 50% (with the exception of language modules which do not contribute to the overall degree algorithm) and students must pass all modules to obtain the MSc degree. A distinction will be awarded for an overall mark exceeding 70% plus the dissertation at 70% or above, marks between 60-69% plus the dissertation at 60% or above will be classed as merit, 50-59% with the dissertation at 50% or above constitutes a pass and less than 50% will result in a fail. A distinction can be awarded for a Masters' degree only.

A full assessment brief is provided within each module handbook. All summative forms of assessment are fully supported by a variety of formative assessment/feedback activities and academic guidance.

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

It is expected that applicants will already hold an honours degree in a scientific discipline appropriate to the chosen research project area although consideration will be given to related programmes. The minimum degree category for entry onto this programme is a lower second class honours degree from a recognised university or equivalent, in line with the 50% pass mark required for successful completion of this course.

Consideration will be given to candidates who do not meet these criteria, but can evidence appropriate, alternative professional qualifications and/or experience.

Applicants who have not had their secondary or tertiary education through the medium of English are expected to have attained the equivalent of an IELTS score of at least 6.5 (with no subtest lower than 5.5) or hold a previous degree which has been taught and examined in English (www.keele.ac.uk/pgapply/).

6. How are students supported on the programme?

The Programme Director will be responsible for the MSc Geoscience Research programme and will hold an introduction session at the beginning of the programme to provide general guidance and advice to programme delivery and lines of accountability and student support. The Programme Director will also be available either directly (through office appointments) or indirectly via email or KLE discussion boards for advice on specific problems students may encounter at any point throughout the programme.

Module leaders are available either directly or indirectly via email for module-specific problems. One-to-one meetings will be arranged as necessary for student consultation. It is the responsibility of module leaders to ensure that appropriate feedback is provided to all students regarding both formative and summative assessment. They will ensure that such feedback is of a high quality and delivered in a timely fashion.

Each student will be appointed a named personal tutor from the academic teaching team for pastoral and academic guidance. Students will be able to meet with their personal tutors over the year (in person or by phone/Skype) and normally students will meet with their Personal Tutors on approximately five occasions during the year. Personal tutors will also introduce and promote the University's Personal Development Planning system to further promote and develop student learning. In addition, there will be an independent advisor available to liaise with students, either as a group or individually, on any aspect of the programme or personal development.

Individual project supervisors can provide additional academic guidance on research-related issues. When the student is undertaking a research project at another institute a supervisor will be appointed at that host institution. Guidelines are available to ensure that there is appropriate interaction between the student, host supervisor and Keele supervisor, and the student will remain in contact with their Keele project supervisor throughout the course of the project. Support whilst on placement is provided by the academic tutor from Keele University (i.e. the Keele-based research project supervisor) and the supervisor at the host institution. The Global Education Team at Keele

University is responsible for all administrative issues with respect to overseas placements and the ERASMUS work placement grant (European placements only).

All students are entitled and encouraged to make use of all central university services, including the Keele Postgraduate Association.

The student cohort will also be represented on the MSc Geoscience Research Student-Staff Voice Committee.

7. Learning Resources

The programmes will be taught in modern teaching rooms across the University which are equipped with computers, internet access and projection equipment. Rooms may be arranged either in traditional lecture format or more informally to allow students to work together in small groups.

Practical research training will be undertaken in appropriate research laboratories within the Faculty of Natural Sciences and students will experience 'real-world' observation and interpretation via their research activities.

Individual module handbooks will provide a recommended reading list, which comprise both traditional text-based resources and a range of electronic multi-media resources that will be accessed through KLE. Discussion boards available on KLE may also be used to enhance student the student experience, learning and support during the period of engagement and provide a forum for the exchange of ideas and discussion of issues that arise. Where feasible, students will be housed in a PGT office or within the offices available to research groups. Access to the University electronic resources should be available in these offices via Wi-Fi or direct internet connection.

The programme will be supported by a number of guest speakers working within Geosciences who will give presentations at research group meetings, School Meetings, research seminars or society meetings. Students are encouraged to make full use of the learning opportunities these activities present by asking questions, staying to talk to the professionals after the sessions or contacting them later through email to answer any questions they may have on their particular area of expertise or general career advice.

The Library has many resources for Geosciences, both on campus and online. Further information about the library can be found at: <https://www.keele.ac.uk/library/>. To access online library services off campus students will need an Athens username and password, which is available from the computer help desk. Students will be encouraged to build a research profile on sites such as www.researchgate.net which is a useful networking tool and source of published peer-reviewed literature.

Students will have access to the IT Services at the University located in the library building. IT Services are responsible for the computing infrastructure in the university and for the support of all staff and students undertaking academic computing tasks. There is a large number of open access PCs available for students. All student PCs use a standard platform, which includes software such as Microsoft Office, web browsers, and other standard applications that may be needed. Printing facilities are available either in Schools or in the library building.

8. Other learning opportunities

Students are encouraged to take full advantage of the research seminar opportunities taking place in the School and they are expected to attend (where possible) all presentations relevant to their subject area (usually held within normal working hours 9am – 5pm). Seminars are usually advertised within the William Smith Building via posters and email.

Home students can opt to carry out their project with an international partner and both Home and International students may have the opportunity to visit another institution or organisation whilst carrying out their research

project at Keele University. Both of these learning opportunities may require funding from the student but visits will be optional (unless the student has signed up for an international placement).

Field trip opportunities will be available through the active Keele University student-led society 'Geosoc', which is open to undergraduates, postgraduates and staff members. The Geosoc regularly advertises events through email and posters in the William Smith Building and representatives are present in the foyer of the William Smith building at the beginning of the academic year to take modest subscriptions to the society.

Students can also opt, or be recommended by their project supervisor (where practical and possible), to attend lectures, seminars and practical sessions, but typically not fieldwork, on appropriate Geoscience modules in addition to the modules they are taking for their degree. This may be useful for further developing key skills in their area of Geoscience and should be cost neutral.

9. Quality management and enhancement

The MSc Geoscience Research Programme Board, which comprises all academic staff teaching on the programme and student representation, is responsible for the day-to-day management of the programme. The Programme Director convenes and chairs regular meetings with the core teaching and supervisor team once a semester and reports to the School Director of Education and the Head of School of Geography, Geology and the Environment.

To ensure that the MSc programme maintains the highest possible standards and ensures the effective management and continuous enhancement of the quality of learning and teaching, the following procedures are employed:

- Student evaluation of teaching; students have the opportunity to evaluate each module and the programme as a whole. Data from the evaluations is reported at regular programme board meetings and to the programme Steering Group.
- Student-Staff Voice Committee; this is an integral part of the monitoring and review procedures and provides a valuable source of management data for the programme team.
- Education Committee meetings; the Programme Board is an integral part of the School of Geography, Geology and the Environment's Education Committee. This committee meets on a regular basis and is responsible for the continual reviewing and monitoring of quality management and enhancement procedures and activities across the School.
- Peer observation of teaching; the staff responsible for delivering the programme undertake regular peer observation of teaching that is used to identify teaching strengths and areas of development.
- Annual Programme Review; individual modules and the programme as a whole are reviewed and enhanced every year as part of the University's annual programme review process. A range of data is used to inform the annual programme review, it comprises student evaluations, external examiners report and internal programme review and monitoring data.
- The programme will be run in accordance with all applicable policies and will be reviewed as part of the Internal Quality Audit for the School of Geography, Geology and the Environment, which take place on a quinquennial basis.
- All programmes in the Faculty of Natural Sciences are supported by a Director of Postgraduate Taught Programmes who represents PGT students at Faculty and University levels.
- The School of Geography, Geology and the Environment currently holds a Bronze Athena Swan award. The Athena Swan Charter (<https://www.ecu.ac.uk/equality-charters/athena-swan/>) promotes best practice in

academia in terms of life/work balance and promotes the support of females in STEM subjects. The School's Athena Swan Self-Assessment team is part of the School Equality, Diversity and Inclusion Committee and includes members of the MSc Geoscience Research teaching team.

The External Examiner

A single senior member of academic staff from another university is appointed by the University's Senate to act as an External Examiner on all the programmes. The primary function of the External Examiner is to:

- Participate in all summative assessments for the award of the MSc in Geoscience Research including approving examination questions, ratifying course work marks and confirming all marks that contribute to a student's final award.
- Arbitrate or adjudicate on problem cases such as the rare occasions where there is a substantial disagreement between first, second and third markers.
- Review and offer practical advice on the programme content, balance and structure, and assessment procedures.

See www.keele.ac.uk/ga/externalexaminers for more details.

10. The principles of programme design

The MSc in Geoscience Research builds on from the successful MSc in Research Training with International Placement (School of Life Sciences) and is a result of collaboration between Keele University and several national or international universities, research institutes and industries. The associations developed provide an excellent framework in which to train students in those generic and science specific skills which would increase their employability in the area of research and/or industry. In addition, it gives students an opportunity to contribute the further development of the collaborative links between Keele and its international partners.

The overall aims of the MSc in Geoscience Research programme (section 1) are based on the Quality Assurance Agency's (QAA) descriptors for Masters Level qualifications in the 2008 Framework for Higher Education Qualification in England, Wales and Northern Ireland, which can be found at:

https://www.qaa.ac.uk/docs/qaa/quality-code/master%27s-degree-characteristics-statement.pdf?sfvrsn=6ca2f981_10

In addition to this, the MSc in Geoscience Research programme targets the Learning and Teaching Strategy of Keele University by:

- Promoting research-informed education and evidence-based practice that supports and increasingly diverse student body (Strategic Aim 3) through critical evaluation of the making/remaking of Geoscience knowledge, development of research skills, and the promotion of international, sustainability and interdisciplinary perspectives in the Geoscience programme.
- Sustaining and extending approaches to learning that further enhance the employability of Keele graduates and the career destinations they are able to reach (Strategic Aim 4) through learning and teaching at the research-teaching nexus.

For further information, see www.keele.ac.uk/strategicplan/learningandteachingstrategy

The programme is following Keele University regulations for **Taught Postgraduate Courses** which can be found at <https://www.keele.ac.uk/regulations/regulationc7/>.

11. Programme version history

Version History	Date	CHANGES / NOTES
Date first created (if known)	15 th May 2014	ULTC approval – June 2014
Date last reviewed / revised	23 rd June 2019	Amended to reflect new structure of modules and part-time options
Last reviewed by	Dr Alix Cage	
Date last approved at SLTC	September 2017	
Date last approved at FLTC	21 st September 2017	