PROGRAMME SPECIFICATION (Research Postgraduate)	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	Master of Research
4	**Programme Title**	MRes in Environmental Geoscience
5	**Programme Code**	4867F
6	**Programme Accreditation**	N/A
7	**QAA Subject Benchmark(s)**	N/A
8	**FHEQ Level**	7
9	**Last updated**	July 2021

10 Programme Aims

The course aims to provide its students with the advanced skills and knowledge of the tools required to carry out a postgraduate research project in an area of environmental geoscience. They should learn:

1. To produce original research, of publishable quality, in any area of environmental geoscience.
2. To design, and lead, an original research project, from start to finish.
3. To understand, and appropriately apply, advanced methods to address research questions within environmental geoscience.
4. The relevant subject-specific knowledge and practical skills required for their chosen specialism within environmental geoscience.

The programme is designed to:

5. Contribute to the University's objectives by providing high quality research training to an increasing number of postgraduates and enhancing their key skills and employability.
6. Produce graduates who can proceed to careers in research in universities, the public sector, the voluntary sector or the private sector.
7. Satisfy the requirements of the Framework for Higher Education Qualifications for a level 7 award and to comply with University policies and the QAA Quality

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Geography.

Knowledge and Understanding

On completing the programme students should have:

A1 - Understanding of key concepts, theories and ideas, relevant to their chosen area of study.
A2 - Knowledge of a range of advanced methods used within environmental geosciences, and the capability to apply these methods to their chosen area of study.
A3 - The ability to design and successfully complete a scientific research dissertation.
A4 - Capacity to synthesise the scientific literature and to use it to analyse results.

A5 - The ability to acquire, process and analyse relevant scientific datasets.
A6 - IT skills, comprising both i) advanced software used within the geosciences (e.g. GIS software); and ii) generic software, such including word processing, spreadsheets, bibliographic software and presentation software.
A7 - The skills to identify and retrieve relevant materials relating to research, including annals, books, journals, theses, conference proceedings and resources available electronically and on the world-wide web.

Teaching and Learning Methods

The compulsory modules provide students with base-line training in methods that are central to Environmental Geoscience, including research, planning and writing skills, training in scientific approaches and training in data analysis for research projects. Therefore delivering A2 to A7, A5 and A6.

Students will take a series of optional modules, which are best suited to their area of interest and best support their research dissertation. These more specialist modules will primarily address A1, but also A2 and A4-7.

The Research Dissertation will enable students to develop their independent research projects. This will be done with support and intellectual input from supervisors. This will particularly teach A3-5 but will also contribute to the other aims.

Assessment Strategy

The Research Dissertation will assess A1-7, with a focus on A3-5. Students will need to effectively design their dissertation and produce a good-quality final dissertation, as this is fundamental to a research degree (A3). In order to do this, they will need to acquire, process and analyse relevant scientific datasets, which address their research question(s) (A5). The research dissertation then needs to set these results within the scientific literature, both in terms of setting out the scientific background and interpreting the results of the research dissertation (A4). Successful dissertations will apply subject-specific understanding from optional modules (A1) and advanced methods (A2). Students will need to apply IT skills (A6) and skills in retrieving research (A7) to their research dissertation topic, in order to successfully complete it.

Students are required to write effectively and critically assess the literature and project proposals. They will need to demonstrate IT skills to produce a good quality report, and their capacity to access and synthesise scientific literature. They will be required to process and analyse scientific data and use it to address a scientific question (A2-A7).

Students will conduct an open book assessment, during which they are required to determine the best way to present, analyse and interpret datasets to address specific questions (A5&6).

Topic-specific knowledge (A1) will be assessed via the assignments completed in the 44 optional module choices for the programme. These assessments will also examine different aspects of A2 and A4-7.

Intellectual Skills

On completing the programme students should be able to:

B1 Principles
(i) Define and formulate research problems, questions and hypotheses.
(ii) Demonstrate an advanced understanding of the rationale for different research methods and analysis techniques, and the ability to select and evaluate appropriate research methods and techniques.
(iii) Understand sampling, sampling error, and biases in results.

(iv) Demonstrate a systematic understanding of, and ability to apply, concepts of generalisability, validity, reliability and replicability.
(v) Synthesise complex information and key theories within their area of study.
(vi) Demonstrate an in-depth understanding of the scientific method.

B2 Data collection and analysis
Students should be able to demonstrate:
(i) A systematic knowledge and understanding of the application of selected methods of data collection.
(ii) An in-depth understanding of strengths and weaknesses of different types of data and the development of a critical approach to the use of different data sources.
(iii) An advanced understanding of the use of research methods and tools to analyse data.
(iv) Proficiency in a range of quantitative data analysis techniques.

Teaching and Learning Methods

B1 and B2 are delivered via the Research Dissertation. Students will develop these intellectual skills, as their thesis progresses. This is via independent reading, discussion with peers and input from supervisors.

Students will be taught how to approach scientific problems, how to develop hypotheses, and how to write effectively and critically in a scientific context (B1).
Students will be introduced to a range of data analysis approaches and taught how to present results effectively (B2).

The optional modules will deliver B1 (iv), by teaching students the relevant information and theory for their chosen area of study. They will also deliver B2 and the other elements of B1, as the courses will teach relevant skills and data analysis techniques. As part of the reading for these courses, students will be exposed to different data types (B2 ii) and methods (B2 i & iii). They will eb encouraged to think critically about these approaches, both during teaching time and in their assessments.

Assessment Strategy

B1 and B2 will be assessed via the Research Dissertation. These intellectual skills are essential for producing a good quality research dissertation. For example, students must be able to design and formulate research questions (Bi) as these will form the basis of the research dissertation.

Students are required to write scientifically and to synthesise ideas and relevant literature and be able to select appropriate approaches to analyse a raw dataset and to present the results effectively. (B1 and B2).

Practical Skills

On completing the programme students should be able to:

C1 - Use range of appropriate, advanced methods to address research questions within environmental geoscience.
C2 - Identify, acquire and collate relevant primary and/or secondary data, from appropriate sources.
C3 - Demonstrate advanced IT skills and capability with specialist software.

Teaching and Learning Methods

Students will learn about a variety of techniques and scientific approaches and will then learn to apply and further develop this knowledge to their research dissertation, via guidance from supervisors and independent reading. This will be supported by work completed in the relevant optional modules (C1-C3).

Assessment Strategy

Students are directly assessed in data preparation, analysis, interpretation and presentation of data, and will need to apply appropriate methods to analyse datasets and present their results (C1-C3).

These practical skills will be assessed via the Research Dissertation, as they are central to producing a good dissertation.C1-3 will also be assessed via the various assessments in the optional modules, although the exact format of the assessment will vary depending on the modules chosen.

Transferable/Key Skills

On completing the programme students should:

D1 - Be able to communicate effectively, via written material and oral presentations.

D2 - Have the capacity to manage research, including writing proposals, planning the research project, and implement the research and complete it on time

D3 - Have the skills to work effectively as a member of a team.

D4 - Be able to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences

D5 - Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.

D6 - Continue to advance their knowledge and understanding, and to develop new skills to a high level.

Teaching and Learning Methods

D1 is taught through all modules on the course. For example, in the 'Research Dissertation', students will learn how to present their project results in a clear and scientific manner, via feedback from supervisors on draft chapters and discussion in meetings. The optional modules of the programme will have a variety of assessments (e.g. written portfolios and oral presentations), meaning that students will develop both written and oral communication skills.

D2 is mainly taught through the 'Research Dissertation'. Students will learn these techniques via meetings with their supervisors and independent development of the project. These principles will be reinforced via deadlines and assessment submissions for the optional modules.

D3. Students will learn to work as team members within their taught modules (optional and compulsory skills module). This will be taught by encouraging students to work together to resolve problems during practical exercises. Students will also be encouraged to work as a community to help each with other issues encountered during their 'Research Dissertation' work, e.g. to discuss and develop their project ideas with peers, or to help each other with technical issues with data processing.

D4-6 are taught through all modules of the course. They are fundamental to the research dissertation and will be developed through interaction with supervisors and peers. '"Data preparation, analysis, interpretation and presentation for MSc" and "Academic & Professional Skills for MSc" will teach students how to approach scientific problems, to tackle problems independently and will continue to advance students' knowledge of scientific approaches and skills. The optional modules will develop these skills, as students will be required to understand complex issues within their area of study and to improve their knowledge with self-directed reading and practical work. This will develop both understanding and skills.

Assessment Strategy

D1 is assessed via the research dissertation, in “Academic & Professional Skills for MSc” and through the assessments for the 40 credits of taught modules.
D2 is primarily assessed via the research dissertation.
D3 is assessed indirectly, as the capacity to work as part of a team should elevate the quality of the student’s research project.
D4-6 are assessed through all modules. These skills are central to producing a high quality research project and will also be assessed via the various practical reports and assignments for “Data preparation, analysis, interpretation and presentation for MSc”, “Academic & Professional Skills for MSc” and the optional modules.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The programme will be for one year and in full-time only mode. This is because students would otherwise miss the core training module, certain optional modules and the research dissertation development. The main components are as follows:

A. Independent research project

The primary focus of the degree is the research project. Students can choose any topic within environmental geosciences, but a supervisor must agree to supervise it. A list of staff available to supervise will be provided to students, who are then responsible for developing the idea with the staff member. Students will provide a statement of research interests at application, which will allows us to check we can supervise a given topic, before admission.

B. Taught courses (60 credits)

Students will take 60 credits of masters-level courses, chosen from those offered by SAGE OR the small number of new courses, focused on physical geography. Students will be required to take compulsory modules with a focus on data preparation, analysis, interpretation and presentation and academic and professional skills. Students are then able to fill the remaining credits with modules of their choice. The modules will be grouped into streams, so that students are clear about different pathways. This information will be provided to students in the course handbook. The pathways are for guidance only, and students may choose modules outside of their stream, but students should consider the relevance of modules to their degree and discuss choices with supervisors. Module choices will be discussed with supervisors prior to commencement, to ensure students have appropriate prior knowledge and are building a skill portfolio suitable for their area of interest.

Key features of the programme (including what makes the programme distinctive)

The programme is strongly focused on research within environmental geoscience, and aims to prepare students for research-related jobs, including further academic study and research-focused industry roles (e.g. environmental consultancy). As outlined above, this will be done through an original thesis, supported by a core training module and specialist relevant optional modules.

In summary, the distinctive points of the programme are:

- Strong focus on research.
- Broad range of thesis topics offered across environmental geoscience, rather than specialising in one single area.
- Opportunity for students to lead and develop in-depth research projects, with expert guidance from academics.
- Teaches students the entire research process, from study design, to data collection, analysis and presentation.
- Provides training in advanced skills and data collection, and their application to research questions.

- Allows students to choose their preferred pathway, through relevant optional modules.
- Links to industry and directly transferrable skills.

Programme regulations (link to on-line version)

4867 Programme Regulations 21-22

13 Support for Student Learning

Generic information regarding University provision is available at the following link.

https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf

14 Methods for evaluating and improving the quality and standards of teaching and learning

Generic information regarding University provision is available at the following link.

https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf

Accreditation reports
N/A

Additional mechanisms

15 Regulation of assessment

Generic information regarding University provision is available at the following link.

https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf

In addition, information relating to the programme is provided in:

The University Prospectus: http://www.ncl.ac.uk/postgraduate/courses/

Degree Programme and University Regulations: http://www.ncl.ac.uk/regulations/docs/

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided.