Programme Specification

MSc Water Resources Management (2020-21)

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

Awarding Institution	University of Southampton
Teaching Institution	University of Southampton
Mode of Study	Full-time
Duration in years	1
Accreditation details	None
Final award	Master of Science (MSc)
Name of award	MSc Water Resources Management
Interim Exit awards	Postgraduate Certificate
	Postgraduate Diploma
FHEQ level of final award	Level 7
UCAS code	
Programme code	8559
QAA Subject Benchmark or other external reference	Earth sciences, environmental sciences and environmental studies 2019, Master's Degree Characteristics 2016, QAA Framework for Higher Education Qualifications (FHEQ) 2008
Programme Lead	Patrick Osborne

Programme Overview

Brief outline of the programme

Highly skilled water scientists and engineers are vital for the conservation and enhancement of our aquatic environment, both locally and globally. This MSc will provide you with the ability to assess the potential and existing impacts on the water environment from industrial practices, abstraction and agriculture. You will explore the scientific and engineering management of our aquatic resources and gain an in-depth understanding of freshwater ecosystems, visit river restoration sites and examine the state of fisheries. This programme provides you with a dynamic education, where innovative lecturers teach you the professional skills to follow a rewarding career as a water-focused environmental scientist.

The MSc Water Resources Management is one of the specialist degree titles available within our Environment and Sustainability Programme Suite. The Suite is managed by the School of Geography and Environmental Science within the Faculty of Environmental and Life Sciences, but draws on contributions from across the university. The

degree will provide you with a flexible set of coherent module choices that prepare you for employment in the environmental sector. Taught by research-active, world-class academic experts from multidisciplinary backgrounds, the programme will equip you with applied skills as well as specialised problem-solving and critical thinking skills, for tackling environmental management and sustainability issues. Typical careers are in the public, private and third sectors as well as national and international agencies. Unique features of our MSc programmes include: the opportunity to work with organisations focused on environmental and sustainability issues; ability to participate in fieldwork and research methods courses; interdisciplinary training, the flexibility of the programme with the potential to specialize; applied modules giving opportunities to practise skills; and the breadth of coverage and the wide disciplinary base.

Your contact hours will vary depending on your module/option choices. Full information about contact hours is provided in individual module profiles.

Learning and teaching

A wide variety of teaching and learning methods are employed in the Environment and Sustainability Programme Suite including lectures, seminars, case studies, field exercises, problem-based learning and activities with external organisations. Several modules involve group exercises where you learn not only about the subject but also how to operate as an effective team, managing your time and assigning roles efficiently. Whatever your background, your prior knowledge is a valuable resource to others and we strongly encourage a participatory and interactive approach to learning.
In all our degrees, we will ensure that:
·   Divergent views can be shared and explored in a safe and encouraging environment
·   There are opportunities for deep and critical reflection on your work
·   Participatory learning is encouraged
·   Interdisciplinary approaches, systems and holistic thinking are employed
·   Teaching, learning and assessment activities are linked to real-life environmental issues.

Each student on the MSc Water Resources Management will be supported by a Personal Academic Tutor (PAT) who has relevant subject knowledge. Your tutor will ensure that the modules and research project you choose will help you to achieve your study goals and to develop a personalised programme within the framework of the degree.

Assessment

The wide variety of teaching approaches inevitably maps onto an equally wide breadth of assessment methods. Students on our MSc programmes will encounter coursework in the form of essays, reports, policy briefs, impact statements, ISO14001 audits, literature reviews, journal articles and presentations, as well as practical and written exams, both unseen and open book

Special Features of the programme

The Environment and Sustainability Programme Suite is unique in the field-based/applied nature of its consistent MSc degree programmes. Students will be trained in the field (in research locations across the south of England as well as with the opportunity to conduct fieldwork overseas on some pathways), in data analysis methods, and in analytical skills to understand and evaluate the challenges of our time. Students will work with stakeholders on complex problems to ensure that they are fully aware of the challenges of working in the environment and sustainability sectors.
Other highlights of the programme include:
·   An optional, two-week residential field course in a developing country
·   Opportunities to work directly with a leading sustainability institute, including competitive opportunities for consultancy-based dissertation, for example through the GeoData Institute
·   Visits to leading environment and sustainability initiatives such as Thames Barrier 2100
·   Visits to industries leading in environment and sustainability
·   Opportunity to receive professional RGS-IBG accredited CPD training through the GeoData Institute (awarded 'Provider status' from the RGS for all of its current GIS courses, and accredited by the Association of Geographic Information, the professional body for the discipline). Additional costs apply.
·   Independent project work that may be conducted in the UK or overseas (subject to Risk Assessments), leading to the production of a journal article with the potential for publication.

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our Disclaimer to see why, when and how changes may be made to a student's programme.

Programmes and major changes to programmes are approved through the University's programme validation process which is described in the University's Quality handbook.

Educational Aims of the Programme

The aims of the programme are to: ·   provide you with a thorough understanding of the functioning and management of the environment, based on firm interdisciplinary foundations

·   give you the opportunity to develop specialist knowledge and understanding in a chosen area of the environmental and sustainability sciences, whilst maintaining a broader view of the environment on an interdisciplinary and multidisciplinary basis

·   provide you with knowledge and understanding of the interactions between environment and society

·   enable you to undertake a substantial research project during your year of study

·   produce graduates who can think critically about the environment in the contemporary world and are able to pursue independent study in the subject with enthusiasm

·   provide opportunities to recognise and develop the key skills necessary for graduates to be capable of reaching their full potentials and play a full role in society including careers in environmental and other professions, industry and commerce

·   provide an education suitable for a wide variety of careers in the environment, with a view to employment following graduation.

Programme Learning Outcomes

Having successfully completed this programme you will be able to demonstrate knowledge and understanding of:

Knowledge and Understanding

On successful completion of this programme you will have knowledge and understanding of:

A1.   Full appreciation of the need for multi-disciplinary and interdisciplinary approaches to advancing knowledge and solving problems in environmental science and sustainability, drawing on the natural, physical and the social sciences

A2.   Deep understanding of the processes that shape the natural world at different temporal and spatial scales and their influence on and by human activities

A3.   Strong familiarity with the terminology, nomenclature and classification systems used in environmental science

A4.   Comprehensive understanding of appropriate methods for acquiring, interpreting and analysing environmental and social science information

A5.   Deep understanding of the issues concerning the availability and sustainable use of the earth's resources

A6.   Deep knowledge of the contribution environmental science and sustainability make to debate on environmental issues and how knowledge of these forms the basis for informed concern about the earth and its people

A7.   Comprehensive understanding of the contribution of environmental science and sustainability to knowledge

A8.   Familiarity with environmental science and sustainability in the workplace and career paths open to environmental consultants and researchers.

Teaching and Learning Methods

Acquisition of core knowledge and understanding is through lectures, seminars, field and laboratory classes, workshops and independent research. You are expected to supplement and consolidate your understanding and knowledge by independent study. Strong emphasis is also placed on the importance of using the flexibility of the programme to provide you with the opportunity to build an individual portfolio of knowledge and skills and which reflects your particular interest(s) in the environment and sustainability.

Assessment Methods

Knowledge is assessed throughout the programmes by a combination of formative methods (to provide you with constructive feedback to help you develop your skills and understanding) and summative methods (to assess your performance). Formative assessment takes the form of feedback on essays, reports, presentations, performance in practical sessions and the research project, and is stressed from the beginning of the programme. Summative assessment takes the form of unseen and open-book examinations and tests, presentations, project work and coursework.

Subject Specific Intellectual and Research Skills

On successful completion of this programme you will be able to:

B1.   Recognise, use and formulate subject-specific theories, paradigms, concepts and principles

B2.   Analyse, synthesise and summarise information critically to a high standard, e.g. suitable for publication

B3.   Apply knowledge and understanding to complex real-world problems in unfamiliar contexts and within limited time-frames

B4.   Collect and integrate multiple lines of evidence to formulate, test and then generate new hypotheses

B5.   Carry out assessments of the moral and ethical issues affecting investigations and appreciate the need for professional codes of conduct

Teaching and Learning Methods

Intellectual and Research skills are developed through lectures, seminars, workshops, discussion groups and practical exercises. Independent reading from a wide range of sources (printed and electronic) covering a variety of issues (linked to formal module material and general environmental and sustainability issues) also contributes to the development of your intellectual skills by exposing you to differing opinions and perspectives.

Assessment Methods

Analysis and problem solving-skills are assessed through unseen written examinations and problem-based exercises. Project design, experimental and research skills are assessed through coursework reports, project reports and oral presentations.

Transferable and Generic Skills

On successful completion of this programme you will be able to:

C1. Handling and integrating multiple information sources across multiple platforms, including working with databases in the broadest sense

C2. Communicating appropriately to a variety of audiences in written, verbal and graphical forms to a standard suitable for publication or public consumption

C3. Appreciating issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and laboratory, and how to overcome

C4. Preparing, processing, interpreting and presenting data, using appropriate qualitative and quantitative techniques and packages (including geographic information systems) to a level suitable for publication

C5. Solving numerical problems using computer and non-computer-based techniques to a standard comparable to that found in published research articles

C6. Using the internet rapidly, critically and effectively as a means of communication and a source of information

C7. Identifying individual and collective goals and responsibilities and performing in a manner appropriate to these roles

C8. Recognising and respecting the views and opinions of other team members, and dealing effectively with disputes that may arise

C9. Evaluating your own performance as an individual and a team member, and that of others within your team

C10. Developing the advanced skills needed for self-managed learning (e.g. handling multiple conflicting deadlines; responding rapidly and effectively to change; acquiring self-management and organisation skills)

C11. Identifying and working towards targets for personal, academic and career development (e.g. gaining memberships of professional bodies, doing work placements and

C12. Developing an adaptable and flexible approach to study and work, especially to meet targets and deadline.

Teaching and Learning Methods

Transferable skills are developed through the learning and teaching activities. You will already possess a broad range of subject specific skills from your first degree and/or other experience. Development of further and more advanced key skills is through training sessions and workshops, including self-assessment of areas of strength and areas of need. Use of university skills development resources is also encouraged for any specific needs you may identify. Completion of the various tasks required in

modules primarily aiming to deliver knowledge and understanding also contributes to development of these skills, for example, by reflection on feedback, organising time to meet deadlines, and use of ICT to produce written work and deliver oral or visual presentations. Written communication skills are practised in all modules. In addition to work done by individuals, tasks are also undertaken in groups in many modules.

Assessment Methods

Skills are formatively assessed through written reports and oral presentations, practical and laboratory reports. Summative assessment is through unseen examinations, extended essays and completion of research projects. Team skills are developed in many modules and peer reviews of presentations may form an element of the assessment.

Subject Specific Practical Skills

On successful completion of this programme you will be able to:

D1.   Planning, conducting, and reporting on environmental and sustainability investigations at the level of competence expected of a consultant or junior researcher

D2.   Collecting, recording and analysing data to an advanced level using up to date techniques in the field, laboratory and for statistical analysis

D3.   Carrying out risk and ethics assessments to a high standard before undertaking field and laboratory investigations, and being aware of relevant health and safety regulations, and potential impact of investigations on the environment and people

D4.   Referencing work to a very high, prescribed standard as expected in a manuscript sent for publication

Teaching and Learning Methods

Practical skills are developed through the learning and teaching programme, building on an assumed level of competence from your previous training and experience. Experimental and fieldwork skills are developed through laboratory experiments, fieldwork and project work.

Assessment Methods

Practical skills are assessed through coursework reports, project reports, presentations and practical exams, including computer-based exercises.

Programme Structure

The programme structure table is below:

Information about pre and co-requisites is included in individual module profiles.

Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note in some instances modules have limited spaces available.

Part 1 (Year 1)

Part 1 (the taught programme) of the MSc Water Resources Management is made up of 60 ECTS/120 CATS points. Taught sessions take place over two semesters, running approximately from October to January and then from February to May each academic year. Full-time students must take 30 ECTS/60 CATS points in Semester 1 and 30 ECTS/60 CATS points in Semester 2.

Part 2 consists of the MSc Research Project worth 30 ECTS/60 CATS points, making a total of 90 ECTS/180 CATS points for the MSc overall. A special feature of the Environment and Sustainability Programme Suite is the replacement of the traditional dissertation with the MSc Research Project written as a journal article (7000 word limit). This is a challenging, real-world exercise and very rewarding for students whose work is of sufficient standard to be submitted to a real journal and eventually published.

One of the strengths in this programme is the range of choice available, although students need to be aware that some timetabling clashes are inevitable and not all module combinations will be possible. To address this, and to ensure that students benefit from the wide choice available to them, Personal Academic Tutors (PATs) will work with each student at the start of each semester to help them select modules that develop their skills in their chosen area and support their learning. As a general guide, timetabling protects all core and compulsory modules from clashes, but not all options may be available to you. Please check carefully when you make your choices.

The structure of the programme and the modules currently offered is set out below. The list of optional modules is subject to change each academic year. A full list of modules and rules will be available to you via the Student Record Self-Service system once you enrol at the University. Information about pre and co-requisites is included in individual module profiles.

You must take 8 modules overall, with 4 in Semester 1 and 4 in Semester 2. In choosing your modules, please note that:
· You must do the 3 specified core modules
· You must choose 3 or 4 modules from Set 1
· You must choose 2 or 3 modules from Set 2
· Only four modules (i.e. 30 ECTS credits) may be taken per semester.

You will be eligible for an interim exit award if you complete part of the programme but not all of it as follows:

Postgraduate Diploma - at least 60 ECTS (minimum of 45 ECTS required at level of award)
Postgraduate Certificate - at least 30 ECTS (minimum of 20 ECTS required at level of award)

To achieve the award of the MSc (i.e. level 7), you will have shown originality in the application of knowledge and you will understand how the boundaries of knowledge are advanced through research. You will be able to deal with complex issues both systematically and creatively, and show originality in tackling and solving problems individually and as part of a team. You will have the qualities needed for employment in circumstance requiring sound judgement, personal responsibility and initiative, in complex and unpredictable professional environments.

Code	Module Title	ECTS	Type
ENVS6003	Freshwater Ecosystems 2020-21	7.5	Core

Code	Module Title	ECTS	Type
GEOG6009	River Basin Management and Restoration 2020-21	7.5	Core

Part 1 (Year 1) Set 1

You must choose 2 or 3 modules from Set 1.

Code	Module Title	ECTS	Type
ENVS6028	Environmental Impact Assessment 2020-21	7.5	Optional
CENV6172	River and Estuary Restoration 2020-21	7.5	Optional
CENV6158	Wastewater Process Engineering 2020-21	7.5	Optional
ENVS6006	Water Pollution 2020-21	7.5	Optional

Part 1 (Year 1) Set 2

You must choose 3 or 4 modules from Set 2.

Code	Module Title	ECTS	Type
ENVS6036	Advanced GIS and Spatial Analysis 2020-21	7.5	Optional
ENVS6034	Advanced Quantitative Methods 2020-21	7.5	Optional
CENV6175	Coastal and Maritime Engineering 2020-21	7.5	Optional
ENVS6030	Environmental Law and Management 2020-21	7.5	Optional
ENVS6032	Geographical Information Systems for Environmental Consultants 2020-21	7.5	Optional
ENVS3014	Sustainable Resource Management 2020-21	7.5	Optional
GEOG6104	Water, People and Environment: Cambodia Field Course 2020-21	7.5	Optional

Part II (Year 2)

Code	Module Title	ECTS	Type
ENVS6035	MSc Research Project 2021-22	30	Core

Progression Requirements

The programme follows the University's regulations for *Progression, Determination and Classification of Results: Postgraduate Master's Programmes* Any exemptions or variations to the University regulations, approved by AQSC are located in *section VI of the University Calendar*.

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular Faculty or discipline area.

The University provides:
- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations.
- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- IT support through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library.
- Enabling Services offering support services and resources via a triage model to access crisis management, mental health support and counselling. Support includes daily Drop In at Highfield campus at 13.00 – 15.00 (Monday, Wednesday and Friday out of term-time) or via on-line chat on weekdays from 14.00 – 16.00. Arrangements can also be made for meetings via Skype.
- assessment and support (including specialist IT support) facilities if you have a disability, long term health problem or Specific Learning Difficulty (e.g. dyslexia).
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Career and Employability services, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- Other support that includes health services (GPs), chaplaincy (for all faiths) and 'out of hours' support for students in Halls and in the local community, (18.00-08.00)
- A Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides
- an academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- opportunities for extracurricular activities and volunteering
- an Advice Centre offering free and confidential advice including support if you need to make an academic appeal
- Support for student peer-to-peer groups, such as Nightline.

Within your Faculty, you will be able to access

·   Introductory sessions for your programme.
·   Research seminars and invited lectures.
·   Module Lead support. Module Leads will be available at designated times during the week to discuss issues related to the particular modules you are studying at the time. This will be in addition to class contact time.
·   Academic/personal tutor. As soon as you register on this programme, you will be allocated a personal tutor. S/he is a member of the academic team and will be available to discuss general academic issues related to the programme as well as offer advice and support on any personal issues which may affect your studies.

· Module handbooks/outlines. These will be available at the start of each module (often in online format). The Handbook includes the aims and learning outcomes of the module, the methods of assessment, relevant background material to the module and a session-by-session breakdown of the module together with appropriate reading lists.
· Within the Faculty, administrative support is provided by your Student Office which deals with student records and related issues and with queries related to your specific degree programme.

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

- Completing student evaluation questionnaires for each module of the programme.
- Acting as a student representative on various committees, e.g. Staff/Student Liaison Committees, School Programmes Committee OR providing comments to your student representative to feedback on your behalf.
- Serving as a student representative on Faculty Scrutiny Groups for programme validation.
- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group.

Further details on the University's quality assurance processes are given in the *Quality Handbook.*

Career Opportunities

n/a

External Examiner(s) for the programme

Name: Dr Georgina Gough - University of West England

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff: Student Liaison Committee in the first instance, and Student representatives on Staff: Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process.

External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their Personal Academic Tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information can be found in the programme handbook.

Appendix 1:

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme also have to pay for:

Additional Costs

Type	Details
Anything else not covered elsewhere	Geodata offers RIS-IGB accredited CPD courses which can be taken in addition to MSc modules. These courses are offered to University of Southampton PGR and PGT students at significant discount. Courses cost between £200 and £350 depending on type and length.
Approved Calculators	Candidates may use calculators in the examination room only as specified by the University and as permitted by the rubric of individual examination papers.
Clothing	(lab coats, protective clothing, hard hat, safety boots, hi-viz vest/jackets). Field course clothing: you will need to wear suitable clothing when attending field courses and field trips, e.g. waterproofs, walking boots. You can purchase these from any source.
Equipment and Materials	Standard construction/modelling materials will be provided where appropriate, unless otherwise specified in a module profile. For customisation of designs/models calling for material other than standard construction/ modelling materials, students will bear the costs of such alternatives.
Fieldwork: logistical costs	(Accommodation, insurance, travel costs, immunisation/vaccination costs). There is an optional two-week overseas residential field course module on the programme. Costs apply – please see the GEOG6104 module handbook for more information.
Optional Visits (e.g. museums, galleries)	Some modules may include additional optional visits. You will normally be expected to cover the cost of travel and admission, unless otherwise specified in the module profile.
Printing and Photocopying Costs	In most cases, coursework and/or projects may be submitted electronically. Where it is not possible to submit electronically students will be liable for printing costs, which are detailed in the individual Module Profile.
Stationery	You will be expected to provide your own day-to-day stationary items, e.g. pens, pencils, notebooks, etc). Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.
Textbooks	Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source. Some modules suggest reading texts as optional background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.

In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in the University Calendar available at www.calendar.soton.ac.uk.