Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and title:	MSc in Environmental Analytics and Management
Name of interim award(s):	
Duration of study / period of registration:	12 months academic year
Queen Mary programme code(s):	
QAA Benchmark Group:	Business and Management
FHEQ Level of Award:	Level 7
Programme accredited by:	N/A
Date Programme Specification approved:	
Responsible School / Institute:	School of Business & Management

Schools / Institutes which will also be involved in teaching part of the programme:

Collaborative institution(s) / organisation(s) involved in delivering the programme:

Programme outline

Climate and environmental changes affect all sectors of economies and societies globally, already causing significant loss of lives, land, and livelihoods, mass displacement and security risks. Domestic and international cooperation between multiple layers of society will play a key role, as well as individual actions by governments, companies, and citizens.
This collaboration will require significant adjustment of the existing businesses to new way of working to reach the sustainability goals. It will require enormous public investments to deploy green technologies, a comprehensive set of climate mitigation policies to curb emissions, adaptation policies to address the risks, the losses and damages already caused by extreme climate events, and among others, effective renewable energy policies.
The private sector is also expected to play a key role, with investors and shareholders, increasingly requiring companies to integrate clear and measurable ESG objectives in their strategies and produce transparent non-financial reporting systems to keep track of the sustainability of their investments. The big challenge at the core of such global effort is the ability to measure and regularly monitor climate actions taken by governments and businesses and evaluate their outcomes.
The MSc in Environmental Analytics presents a comprehensive set of tools and theories to help students to enter this developing job market: from sophisticated analytical tools, such as AI to econometrics and network analysis. During this course, you will develop a deep understanding of the nature of climate and environmental change and acquire advanced analytical skills to evaluate the actions and strategies adopted by governments and corporations and develop the capability to design effective forms of intervention. Moreover, you will learn the foundations of climate finance and climate-related risk

management that will enable you to integrate clear and measurable ESG objectives in companies' strategies and produce transparent non-financial reporting systems to keep track of the sustainability of their investments.
This MSc can also serve as a starting point for people, considering academic and industry research pathways, providing you a with a basis for future research career and informing you about the existing challenges in climate-change related domains.

Aims of the programme

This program aims to:
1) offer an access to a graduate degree for students with different academic backgrounds that include engineering, computer and social sciences, but not exclusively in order to meet a diversity of student aspirations;
2) provide a highly professional degree that offers students the advanced knowledge in the field of environmental and climate change analytics and its use in the real economic and business environment;
3) develop critical thinking and analytical skills to evaluate, assess and apply the latest development of AI, network analysis and macro-and m
icro- economic analysis into the business solutions and processes;
5) develop interdisciplinary skills in the area of economics, management, AI and international business;
4) enhance professional skills of how to transfer knowledge into the specific business processes in the evolving ecosystems;
6) motivate students to continue their personal development of transferable skills;
7) to enhance students employability skills.

What will you be expected to achieve?

Students who successfully complete the programme will be able to:

1) independently identify, formulate and solve problems;
2) effectively communicate with AI researchers, policy makers and the final users of business solutions;
3) to evaluate the actions and strategies adopted by governments and develop the capability to design effective forms of intervention;
4) conduct independent analytical research;
5) enhance skills to present essential scientific and technical analytical research;
6) advance qualitative and quantitative communication skills;
7) develop programming skills.

Academic Content:	
A 1	Critically understand involving a multitude of different disciplines;
A 2	Enhance skills to present essential scientific and technical analytical research;
A 3	Conduct independent research;

Disciplinary Skills - able to:	
B 1	Understand the landscape of global environmental change

B 2	Master the use of big data and advanced analytical tools to be able to identify trends and dynamics of fundamental aspects of climate change, such as environmental risks organizations are exposed to, quality of natural capital, GHG emissions, and diffusion of best management practices, behaviours and policy
B 3	Be able to apply complex network analysis and AI methods to real-life business cases
B 4	Execute AI methods in Python
B 5	Understand microeconimical and behavioural foundations of climate change
B 6	Apply empirical methods to environmental business challenges
B 7	Apply financial methods for climate-change related problems
B 8	Apply environmental risk analysis in business context
B 9	Critically evaluate the actions put in place by the public and private sector to promote sustainability and address environmental problems
B 10	Design effective sustainable management strategies and policies.

Attributes:	
C 1	Be able to independently learn new programming techniques as needed
C 2	Be able to create AI-based solutions in Python programming language that solve practical problems
C 3	Be able to work in a team

How will you learn?

Teaching is by research-oriented staff (complemented where appropriate by visiting lecturers with professional expertise), who will combine professional knowledge of their subject with a critical attitude to its delivery. Students therefore work in a challenging, supportive environment.

Teaching:

Each module has an outline description, giving the aims, expected learning outcomes, assessment methods, outline syllabus and indication of primary reading. This information is available online on the School's Postgraduate webpage.
Students typically have 3 contact hours per week in each module. Within these three hours, each module has its own pattern of lectures, seminars/classes and other activities. Lectures emphasise dissemination of information, explaining the key ideas and determining the sequence and pace of learning. Seminars/classes make for a more active learning experience by facilitating student interaction in discussion, exercises, problem sets, case studies and presentations (as appropriate).

To achieve the learning outcomes of the programme the following pedagogical forms of teaching are to be deployed: constructivist, collaborative, integrative, reflective and inquiry-based learning. These forms are to be deployed through a large scale of different teaching and learning activities that include the standard lectures that will be accompanied by the small group seminars, one-to-one tutorials, expert lectures, PC lab, group-work, independent studies, research projects, team group learning.

The learning outcomes - academic content A1-A4 - will be achieved through lectures, tutorials and research projects.

The learning outcomes - disciplinary skills B1- B8 - will be achieved through a series of lectures, case studies, tutorials, PC lab sessions, private studies, group exercises.
The learning outcomes- attributes C1-C5 - will be achieved through lectures, guest lectures, tutorials, research projects, one to one tutorials,

The variety of the proposed learning approaches that will be underpinned by the elements of the fundamental pedagogical forms as we have already emphasised that is: constructivist, collaborative, integrative, reflective and inquiry-based learning, will enhance the quality of student experience in this particular highly professional degree. It is necessary to underscore the fact that the knowledge construction and interdisciplinary skills are achieved through the designed structure of the programme that uses three teaching terms.

How will you be assessed?

Modules are typically assessed by a combination of coursework (usually 30% of the total mark) and final (two hour) examinations (70% of the total mark). The learning outcomes that include academic content and disciplinary skills are assessed in each module through the following assessments: coursework, essays, projects, presentations and unseen exams. But there is considerable variation across modules, and some are wholly examined by coursework. The assessment methods are carefully designed for each module and there is the required variations of the used assessment methods to fully capture the essence of the specific moduless and the specific learning outcomes. It is important that timely and detailed feedback provided to students is an integral part of the assessment process.
Clear guidance on coursework requirements is given emphasizing approaches to coursework of various types and the avoidance of plagiarism. Standard College procedures are followed in the setting and marking of examinations and in the determination of overall results.

How is the programme structured?

Please specify the structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

The programme is full-time over 3 terms in 1 academic year, with 4 modules per term.

Semester A (4 compulsory modules)
• Global Environmental Change: Economics and Policy
• Macroeconomics of Climate Change
• Data analytics I (Introduction to AI)
• Micro & Behavioural Foundations of Climate Change

Semester B (2 compulsory modules and 2 elective modules)
Compulsory modules:
• Data Analytics II: AI for Climate Change
• Complex networks for environmental economics
Elective modules:
• Applied empirical methods
• Economics of development
• Experiments for business and analytics
• Analytical Frontiers in Supply Chain Management
• Financial Risk Management
• Sustainability Reporting

Semester C
3 compulsory modules:
• Sustainable Finance and ESG Performance
• Climate Change Risk for Business
• Group project
In the week before Semester A teaching begins, the Director of Postgraduate Taught Programmes leads a two-day induction

session for the cohort entering that year. This covers Core and Elective Modules in each Programme; Choice of Electives; the Documentation Students Must Complete; Exams; Coursework and Assessment; the Student Handbook; the Dissertation (Structure; Organisation; Research and Plagiarism); Security and Safety; Library Resources; IT Resources; SSLC; Careers Advice; Help with English; and Campus Tours.
Formally, the SSLC meets twice a semester, with a student representative from each programme. Informally, each student in the programme has access to the Programme Director, who reports to the Director of Postgraduate Taught Programmes.
Curriculum development and delivery are overseen by the Programme Organiser through the relevant School Teaching Review Group which reports to the School's Teaching and Learning Committee. The School's Teaching Review Groups oversee teaching methods in each module, taking into account student evaluations and comments, means and distributions of examination marks, and external examiner reports. Development of individual teaching is guided through peer review, participation in staff development courses, the appraisal system and teaching evaluation. Account is also taken of views put forward by Department Meetings and the Student-Staff Liaison Committee as well by external sources (external examiners, and views filtered through the College's International Office).

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Global Environmental Change: Economics and Policy	BUSM230	15	7	Core	1	Semester 1
Macroeconomics of Climate Change	BUSM231	15	7	Core	1	Semester 1
Data Analytics I (Introduction to AI)	BUSM234	15	7	Core	1	Semester 1
Micro & Behavioural Foundations of Climate Change	BUSM237	15	7	Core	1	Semester 1
Data Analytics II: AI for Climate Change	BUSM235	15	7	Core	1	Semester 2
Complex networks for environmental economics	BUSM233	15	7	Core	1	Semester 2
Applied empirical methods	BUSM112	15	7	Elective	1	Semester 2
Economics of development	BUSM073	15	7	Elective	1	Semester 2
Experiments for business and analytics	BUSM160	15	7	Elective	1	Semester 2
Analytical Frontiers in Supply Chain Management	BUSM226	15	7	Elective	1	Semester 2
Financial Risk Management	BUSM245	15	7	Elective	1	Semester 2
Sustainability Reporting	BUSM247	15	7	Elective	1	Semester 2

Programme Title: MSc in Environmental Analytics and Management

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Sustainable Finance and ESG Performance	BUSM229	15	7	Compulsory	1	Semester 3
Climate Change Risk for Business	BUSM238	15	7	Compulsory	1	Semester 3
Group project		30	7	Compulsory	1	Semester 3
Introduction to Mathematics and Statistics for Business	BUSMXXX	0	7	Compulsory	1	Semester 1

What are the entry requirements?

The programme is designed for students with a bachelor's degree (2:1 or above) in the social sciences but it is also open to students with good quantitative skills including engineering, mathematics, etc. Standard English requirements apply. IELTS Academic: 7.0 overall including 6.0 in Writing, and 5.5 in Reading, Listening and Speaking or equivalent exam.

How will the quality of the programme be managed and enhanced? How do we listen to and act on your feedback?

The Student academic performance and the academic quality of the programme are to be closely monitored, managed and enhanced through the following mechanisms:

The Programme Director works closely with the Deputy Dean of Education, the Head of Department and the School of Business and Management Teaching and Learning Committee. As a result, any issues are identified earlier for remedy. For example, issues may be cited by students or the external examiner and meetings held monthly.

In addition, the Programme Director works closely with the School's Student Engagement Team to update students on important aspects concerning quality.

The School of Business and Management has a dedicated member of academic staff to scrutinise the latest and past NSS scores, in addition to module evaluations.

The school regularly sends staff members to attend CABS conferences (Chartered Association of Business School). These conferences bring together colleagues from business schools across the UK and foster an exchange between them on how to manage business schools effectively and how to best teach students about business. These interactions ensure that our students are taught using the most recent methods.

The Staff-Student Liaison Committee provides a formal means of communication and discussion between schools/institutes and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year.

Each school operates a Learning and Teaching Committee, or equivalent, which advises the School Director of Education on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in the committee's work in a number of ways, such as through student membership, or consideration of student surveys.

What academic support is available?

The School of Business and Management aims to provide a high quality teaching and learning environment. Teaching will be by research-oriented staff complemented where appropriate by Teaching Fellows, who will combine specialist knowledge of their subject with a critical attitude to its delivery. Students will, accordingly, be working in a challenging, supportive environment

The induction week before the start of Semester A provides introductory talks on all the services and support mechanisms available within the school and college. The plasma screens within the school also update on timetabling, events and support services within the school. The virtual learning environment (QMplus) has information on the different modules and supervisory advice as well as personalised teaching timetables. Students are also advised on the support services available in the Language and Learning Unit. A module talk is held at the start of the module selection process to enable students make informed choices when selecting their electives.

Postgraduate Programme Director
The School has one academic Programme Directors who is able to support students through their studies, if they encounter any difficulties of a personal nature which are having an impact on their studies they can meet with the Director for support.

Academic Advisors
Every student is allocated an Academic Advisor who they can approach should they have any queries or issues related to their academic studies or academic development. Students are expected to see their advisor at least once each semester.

Office Hours
All academics have dedicated office hours published on the website so students may visit them to discuss any aspect of their learning on specific modules.

Programme-specific rules and facts

N/A

How inclusive is the programme for all students, including those with disabilities?

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.

Students can access advice, guidance and support in the following areas:
• Finding out if you have a specific learning difficulty like dyslexia
• Applying for funding through the Disabled Students' Allowance (DSA)
• Arranging DSA assessments of need
• Special arrangements in examinations
• Accessing loaned equipment (e.g. digital recorders)
• Specialist one-to-one "study skills" tuition
• Ensuring access to module materials in alternative formats (e.g. Braille)
• Providing educational support workers (e.g. note-takers, readers, library assistants)
• Mentoring support for students with mental health issues and conditions on the autistic spectrum.

Links with employers, placement opportunities and transferable skills

Graduates from this programme will have developed a range of cognitive and practical skills together which will be applicable to be different context beyond academia.

The School works closely with the Careers Service to locate possible work placements/ internships and to prepare students for the recruitment process (e.g assistance in creating effective CVs to reach potential employers, interview skills).

The qualities and skills a graduate from this programme might be expected to have include a range of cognitive and intellectual skills together with techniques specific to business and management, and relevant personal and interpersonal skills. These include:

The ability to think critically and creatively: organise thoughts, analyse, synthesise and critically appraise. This includes the capability to identify assumptions, evaluate statements in terms of evidence, detect false logic or reasoning, identify implicit values, define terms adequately and generalise appropriately.

The ability to conduct research into business and management issues either individually or as a part of a team through research design, data collection, analysis, synthesis and reporting

Effective performance within team environments and the ability to recognise and utilise individuals' contributions in group processes and to negotiate and persuade or influence others; team selection, delegation, development and management.

Ability to recognise and address ethical dilemmas and corporate social responsibility issues, applying ethical and organisational values to situations and choices.

Programme Specification Approval

Person completing Programme Specification:	Professor Brigitte Granville
Person responsible for management of programme:	Dr. Caterina Genaioli, Dr. Zeynep Gurguc, Dr. Natalia Efrem
Date Programme Specification produced / amended by School / Institute Education Committee:	
Date Programme Specification approved by Taught Programmes Board:	