

**MSc in Environmental Pollution (full-time)**  
**For students entering in 2014/5**

Awarding Institution:	University of Reading
Teaching Institution:	University of Reading
Relevant QAA subject Benchmarking group(s):	
Faculty:	Science Faculty
Programme length:	12 months
Date of specification:	14/Oct/2014
Programme Director:	Dr Elizabeth Shaw
Programme Advisor:	
Board of Studies:	The SAGES BoS for PGT Programmes
Accreditation:	None

**Summary of programme aims**

This M.Sc. aims to provide a thorough understanding of the key principles of Environmental Science which are widely applicable to vocational specialisation in contaminated land, remediation, environmental assessment, protection and management.

**Transferable skills**

The following are provided: experience of Information technology, problem solving skills, research project skills, presentation and writing skills

**Programme content**

Module Code	Module Title	Credits	Level	Compulsory (C) or Optional (O)
<b>Autumn Term</b>				
GVMTPPE	Transport Processes in the Environment	10	7	O
GVMBIO	Soil Microbiology and Biotechnology	10	7	C
GVMCON	Soil Contaminants	10	7	C
GVMLASP	Laboratory analysis of Soils and Pollutants	10	7	C
GVMQAD	Quantitative Analysis of Environmental Data	10	7	C
HEM01	Research Skills and Careers Learning	10	7	C
<b>Spring Term</b>				
GVMPSIA	Practical site investigation	20	7	C
GVMREM	Remediation	10	7	C
GVMWEM	Soils, waste and Environmental Management	10	7	O
GVMSWQ	Soils and Water Quality	10	7	O
GVMSD	Short Dissertation	10	7	O
LWMTEE	EU Environmental Law	10	7	O
GV3AP	Atmospheric Pollution	10	6	O
<b>In break between Spring and Summer terms</b>				
GVMFC	Integrated soil science - Field Class	10	7	C
<b>After 2nd set of Exams</b>				
GVMRP	Research Project	60	7	C

Students should choose optional modules totalling 30 credits from the lists above. Choices must be made in consultation with the Programme Director and subject to timetabling constraints.

### **Part-time or modular arrangements**

Part time participants may either follow all the modules taught in the Autumn term in their first year and all the modules taught in the Spring term in their second year or alternatively may follow half the modules from the Autumn and Spring terms in both their first and second years. The most appropriate arrangements for individual applications will be discussed with the Course Director. Part time students will be encouraged to consider running a long-term research project over the two years that they are registered on the course but may carry out their research project in either their first or second year, again as is appropriate to their circumstances.

### **Progression requirements**

None

### **Summary of Teaching and Assessment**

Teaching is through a combination of lectures, seminars, practicals, computer-based self-taught exercises, site visits and talks by invited speakers.

Assessment is through a combination of exams, assessed practicals, essays, scientific reports and presentations. The University's taught postgraduate marks classification is as follows:

#### Mark Interpretation

70 - 100% Distinction

60 - 69% Merit

50 - 59% Good standard (Pass)

#### Failing categories:

40 - 49% Work below threshold standard

0 - 39% Unsatisfactory work

#### *For Masters Degrees*

To pass the MSc students must gain an average mark of 50 or more overall including a mark of 50 or more for the dissertation. In addition the total credit value of all modules marked below 40 must not exceed 30 credits and for all modules marked below 50 must not exceed 55 credits.

Students who gain an average mark of 70 or more overall including a mark of 60 or more for the dissertation and have no mark below 40 will be eligible for a Distinction. Those gaining an average mark of 60 or more overall including a mark of 50 or more for the dissertation and have no mark below 40 will be eligible for a Merit.

#### *For PG Diplomas*

To pass the Postgraduate Diploma students must gain an average mark of 50 or more. In addition the total credit value of all modules marked below 40 must not exceed 30 credits and for all modules marked below 50 must not exceed 55 credits.

Students who gain an average mark of 70 or more and have no mark below 40 will be eligible for the award of a Distinction. Those gaining an average mark of 60 or more and have no mark below 40 will be eligible for a Merit.

#### *For PG Certificate*

To pass the Postgraduate Certificate students must gain an average mark of 50 or more. In addition the total credit value of all modules marked below 40 must not exceed 10 credits.

Normally candidates registered for a diploma will complete the taught courses offered in the Autumn and Spring terms and candidates registered for a certificate will complete either the taught courses offered in the Autumn or the Spring term.

### **Admission requirements**

Entrants to this programme are normally required to have obtained an upper second (2:1) in an Environmental Science-based degree

**Admissions Tutor:** Dr Liz Shaw

### **Support for students and their learning**

University support for students and their learning falls into two categories. Learning support is provided by a wide array of services across the University, including: the University Library, the Careers, Placement and Experience Centre (CPEC), In-session English Support Programme, the Study Advice and Mathematics Support Centre teams, IT Services and the Student Access to Independent Learning (S@il) computer-based

teaching and learning facilities. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme. Student guidance and welfare support is provided by Personal Tutors, School Senior Tutors, the Students' Union, the Medical Practice and advisers in the Student Services Centre. The Student Services Centre is housed in the Carrington Building and offers advice on accommodation, careers, disability, finance, and wellbeing, academic issues (eg problems with module selection) and exam related queries. Students can get key information and guidance from the team of Helpdesk Advisers, or make an appointment with a specialist adviser; Student Services also offer drop-in sessions and runs workshops and seminars on a range of topics. For more information see [www.reading.ac.uk/student](http://www.reading.ac.uk/student)

### **Career prospects**

On completion of this course graduates may expect to find employment in the Environmental Sector. Previous students on the course have found employment with consultancies, government research agencies, industry and within academia .

### **Opportunities for study abroad or for placements**

During their research projects students may carry out field work abroad. Additionally during their projects students may be based abroad or within the UK at consultancies, governmental agencies, research institutes or industrial bodies provided that the Course Director is satisfied that suitable facilities and supervision are available to them.

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### **Programme Outcomes**

#### **Knowledge and Understanding**

##### **A. Knowledge and understanding of:**

1. Processes by which water and dissolved solutes are transported in soils using physical principles
2. The important chemical properties of soils, including the reasons for and consequences of the electrically charged surfaces of most soil constituents
3. Geographic information systems
4. A general understanding of the pathways of soil contamination
5. The most important groups of inorganic and organic pollutants and chemical properties and processes which govern their environmental fate
6. The major groups of micro-organisms in soils and their role in the cycling of C, N, P and S and their use in bioremediation
7. Classical and bespoke statistical methods that may be applied to environmental data
8. Key areas of environmental law and regulation in England and Wales and wider Europe
9. Techniques and processes involved in site investigation and risk assessment
10. Strategies and objectives of remediation
11. Sources, processing and disposal of waste materials
12. The behaviour of pollutants in soil, losses into water and current method of management to

##### **Teaching/learning methods and strategies**

Lectures, laboratory practicals, seminars, group discussions, videos, presentations by industrial practitioners, data handling exercises, computer based exercises.

##### *Assessment*

Practical reports, examination, essays, computer and laboratory-based practicals.

reduce the associated environmental hazards

### **Skills and other attributes**

#### **B. Intellectual skills - able to:**

1. Predict water and solute transport in soils using physical principles
2. Recognise and explain the important chemical properties of soils
3. Understand controls on mobility and availability of pollutants in soils
4. Outline the importance of micro-organisms in soil systems and their impact on the wider environment
5. Discuss key areas of environmental law and regulation in England and Wales including the impact of EU law
6. Compare and advocate remediation strategies
7. Illustrate sources of and disposal routes for industrial and domestic waste
8. Plan and carry out a research project

#### **C. Practical skills - able to:**

1. Use computer packages to analysis and explain field data
2. Carry out chemical analysis of soils
3. Calculate toxic and acceptable concentrations of pollutants in soils
4. Isolate and characterise micro-organisms in soils and measure their activity
5. Analyse environmental data using classical and spatial statistical methods
6. Carry out risk assessments and site investigations
7. Describe soils in the field
8. Plan and carry out a research project

#### **D. Transferable skills - able to:**

1. Produce Word documents containing tables, numbered and bulleted lists, a variety of fonts, graphics and pictures
2. Sort data and perform basic arithmetic and statistical procedures within Excel
3. Produce charts and graphs in a variety of formats using Excel
4. Produce slides for a presentation within the PowerPoint package that include text, bullet points, drawings, use of pre-set animations for the appearance of text
5. Give clear presentations on a scientific topic
6. Produce clearly written scientific reports
7. Work in teams
8. Plan and carry out research projects including managing their time in an efficient fashion

#### **Teaching/learning methods and strategies**

Lectures, laboratory and computer based practicals

##### *Assessment*

Exams (1 - 7), essays (2 - 4), presentations (2, 3), computer practicals (1), written reports (5 - 7), project thesis and presentation (8)  
These skills link directly to specific modules and are assessed both during courses (see module descriptions for details) and in examinations.

#### **Teaching/learning methods and strategies**

Laboratory practicals, seminars, lectures, independent research project

##### *Assessment*

Laboratory reports (1, 2, 4, 5), reports in the style of those given to clients (6), exams (3), field reports (7), project thesis and presentation (8)  
These skills are assessed primarily with reference to specific modules (see module descriptions for details) though (1) is also assessed more generally throughout the course.

#### **Teaching/learning methods and strategies**

Lectures, self-taught computer packages, seminars, individual research projects, team-based presentations and research projects

##### *Assessment*

Ability to produce specimen Word documents (1), Excel charts (2, 3) and PowerPoint presentations (4), course work written and submitted in the style of scientific reports to a client (5, 6), peer-assessed contribution to team-based practicals (7), project thesis and presentation (5, 6, 8)  
This assessment is carried out directly (see module description dealing with transferable and generic skills) and indirectly throughout the course and forms a component of assessed course work.

**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 he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance process or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.**