MSc Environmental Pollution

The programme structure consists of a mixture of core taught modules (120 credits worth) reflecting the highly vocational nature of the programme, and an independent research project (60 credits worth). Together these components comprise a total of 180 credits that students are required to take at MSc level. Our current modules are:

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Pollutant Behaviour in the Environment

Module Convenor: Professor Anne Verhoef

Description: The module focuses on both the processes and applied aspects of pollutant behaviour in the environment with an emphasis on terrestrial and freshwater systems and their interface.

Aims: This module aims to provide a fundamental grounding in the physical and (bio)chemical processes underpinning the behaviour of pollutant chemicals in the environment; an introduction to the assessment of risk posed by environmental contamination, and objectives of, and strategies for, the remediation of contaminated sites.

Assessment: Essay and written reports.

Environmental Consultancy

Module Convenor: Professor Chris Collins

Description: In this module you will undertake a practical site investigation on a former landfill. The results of the field sampling are used to develop a risk assessment of the site. The findings are presented to an expert panel under realistic conditions. Students benefit from a real life environment that provides genuine field experience that can be presented to future employers.

Aims: To teach the theory and application of techniques for contaminated site investigation and assessment with the subsequent presentation of the findings to clients.

Assessment: Written assignment including essay, set exercise and oral presentation.
Environmental and Pollution Microbiology

Module Convenor: Professor Elizabeth Shaw

Description: This module provides an understanding of the major groups of microorganisms in soils, their adaptation to soil environments, and their impact on the wider environment. The course will also provide students with examples of the benefits of managing soil microorganisms for bioremediation, plant growth promotion, and environmental sustainability. The associated practical work will provide students with practical experience of measuring, isolating and testing examples of soil microorganisms and quantifying some microbially-mediated processes.

Aims: To provide you with an understanding of the major groups of microorganisms in soils, their adaptation to soil environments, and their impact on the wider environment. Emphasis will be placed on the role of soil microorganisms in global cycling of C, N, P and S and in the degradation of natural and anthropogenic chemicals in the environment (biogeochemical processes).

Assessment: Essay, written reports.

Laboratory Analysis of Soils and Pollutants

Module Convenor: Dr Tom Sizmur

Description: This module develops your laboratory and reporting skills. Over the course of 10 practical classes you will develop knowledge of the main analyses which are applied to soils to determine properties pertinent to the fate and behaviour of pollutants. You will also undertake a number of tests that are used to assess the concentration and bioavailability of a suite of contaminants in polluted soils. This module provides practical experience of techniques introduced and applied in GVMPBE.

Aims: To provide students with the skills required to analyse key soil properties related to pollutant fate. To gain experience analysing organic contaminants and potentially toxic elements in environmental samples. To introduce good laboratory practice and the importance of care for health protection and precise results. To develop good reporting and record keeping in the laboratory. To improve understanding of the relationships between soil properties and pollutant fate.

Assessment: Practical skills assessment and written report.

Urban Air Quality

Module Convenor: Dr Hong Yang

Description: This module will provide students with an overall understanding of urban air pollution as a basis for evaluating recent advances in scientific knowledge on the influence of traffic, industry, and domestic energy consumption on air quality in urban environments. Particular focus will be given to understanding traffic and urban air pollution. The module will also measure air quality and model the concentration and emission of air pollutants affected by anthropogenic activities.

Aims: to promote an understanding of the nature and effects of human-induced urban air pollution.

Assessment: Essay, Written report and oral presentation.
Contemporary Issues in Environmental Law

**Module Convenor:** Dr Mark Wilde

**Description:** This module is of interest to students pursuing subjects’ related to environmental management and regulation and is designed to provide in depth coverage of certain topical issues in environmental law. It is intended to be a freestanding module and does not depend upon existing knowledge of the subject. To this end it looks at the relationship between domestic, European and international environmental law. The module also considers the general approaches to environmental law and policy and identifies overarching principles and general themes.

**Aims:** To demonstrate the role played by law in tackling some of the most pressing environmental issues of our age. It uses a case study approach to introduce a number of recurrent themes in environmental law. These include issues such as the need to achieve sustainable economic development and the difficulties of translating scientific concepts into legally enforceable standards.

**Assessment:** Essay.

Quantitative Analysis of Environmental Data

**Module Convenor:** Dr Shovonlal Roy

**Description:** Quantitative data analysis is essential for Environmental Science. These practical skills increase our understanding of natural environmental processes and the impact of human activity on the environment (e.g. pollution and land management) through the analysis of data collected during practical investigations. This module will provide an overview of commonly used statistical and graphical techniques for environmental data analysis. Students will have the opportunity to design simple experiments, collect and analyse their own data, as well as analyse real data sets provided from different environmental research studies.

**Aims:** To help you learn how to analyse environmental data by applying and interpreting the outputs from a range of classic and modern statistical methods using Minitab and ArcGIS.

**Assessment:** Written report.

Waste and Environmental Management

**Module Convenor:** Dr Steve Robinson

**Description:** Through a combination of lectures and site visits, this module aims to develop the student’s understanding of the principles and practice of waste production and management. The lectures include contributions from external speakers on a range of technical and political challenges facing the waste industry.

**Aims:** To provide students with an understanding of the origin and composition of a variety of industrial and domestic organic and inorganic wastes, their treatment and disposal. Students will gain an understanding of the needs of the user-community in relation to soils and the wider environment. The course will provide students with an understanding of the various ways in which underlying principles are applied to the management of environmental issues in the commercial world.

**Assessment:** Essay and Written report.
Field Class

Module Convenor: Professor Chris Collins

Description: This module provides field examples of problems discussed during the teaching terms of Environmental Management and Environmental Pollution. You will obtain further hands on experience of monitoring and assessing environmental issues e.g. waste, contaminated land, water quality, and sustainable land management. The class runs from Sunday to Friday during the Easter vacation.

Aims: This module aims to provide you with the practical skills to identify, document, and evaluate the impact of human activities on the environment in the field.

Assessment: Written Assignments, Field notebook.

Skills for Independent Learning

Module Convenor: Professor Elizabeth Shaw

Description: Through seminars, tutorials and coursework, this module is designed to provide training in the skills required to study and research at postgraduate level.

Aims: The module aims to make students aware of the academic standards and integrity expected at postgraduate level and to provide training in study skills required for independent in learning in taught and research project modules.

Assessment: Written assignments and set exercise.

Research Project

Module Convenor: Dr Jess Neumann

Description: This module provides training in the skills required to devise, carry out and report a scientific project

Aims: The project, which may be in any appropriate area of Environmental Pollution, is intended to provide training in the skills required to devise, carry out and report a research project.

Assessment: Literature review and dissertation.