Institute for the Environment

World Class Research and Training

A guide to our research expertise, collaborative opportunities, impact successes, PhD programmes, MSc degrees and CPD courses.

www.brunel.ac.uk/ife
“Brunel University London has led novel work over a 20 year period and significantly influenced European legislation banning the discharge of hormone-disrupting and other chemicals into wastewater, improving water quality and benefitting human health and aquatic life.”

Citation for the 2011 Queen’s Anniversary Prize, which also recognised the impact and outreach from the Institute for the Environment in other areas of research.
Welcome to the Institute for the Environment

Our mission is to deliver high quality research and postgraduate training programmes aimed at the protection of life on Earth from environmental hazards, both present and future. Our staff and postgraduates are trained to provide explanations and solutions to environmental problems and to transform their research into useful knowledge for decision makers and consumers.

With this brochure, I want to share our successes and show you how we can help you, either as a research partner or student.

Professor Susan Jobling
Head of the Institute for the Environment

Professor Jobling has been head of the Institute since 2011. She is a Professor in Ecotoxicology. Her research on the ability of environmental contaminants to mimic chemical messengers (hormones) and alter functioning of the reproductive and endocrine systems has had legislative impact at the European level.

Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>About the Institute for the Environment</td>
<td>5</td>
</tr>
<tr>
<td>Why work or study with us?</td>
<td>6</td>
</tr>
<tr>
<td>Key research areas</td>
<td>8-15</td>
</tr>
<tr>
<td>Postgraduate research</td>
<td>16</td>
</tr>
<tr>
<td>Postgraduate teaching overview</td>
<td>17</td>
</tr>
<tr>
<td>MSc in Climate Change Impacts and Sustainability</td>
<td>18</td>
</tr>
<tr>
<td>MSc in Legislation and Management</td>
<td>19</td>
</tr>
<tr>
<td>MSc in Pollution and Monitoring</td>
<td>20</td>
</tr>
<tr>
<td>MSc in Sustainability, Entrepreneurship and Design</td>
<td>21</td>
</tr>
<tr>
<td>MSc in Toxicology and Risk Assessment</td>
<td>22</td>
</tr>
<tr>
<td>CPD courses</td>
<td>23</td>
</tr>
<tr>
<td>Contact and visiting information</td>
<td>24</td>
</tr>
</tbody>
</table>
Dr. Andrew Russell demonstrating cloud physics to local school children

Prof. Susan Jobling conducting field work with the Environment Agency
About the Institute for the Environment

All our work – be it research, teaching or dissemination – has four things in common:

Interdisciplinary
As a team, we bring together different disciplines to address complex environmental questions. Our researchers have been drawn together from across the academic spectrum: biology, chemistry, physics, geography, mathematics, medicine and the social sciences. Interdisciplinary thinking and investigation have become second nature to us.

There are many opportunities for innovation and excitement at the boundaries between scientific disciplines and our training is aimed at producing postgraduates who not only grab these opportunities, but also create them.

Sustainability
Sustainability is not just a buzz word. It is a new paradigm that promises to have a deep and lasting impact on science, society, economics and politics. This is the ‘big picture’ that our projects develop from and ultimately aspire to inform and influence.

All of our research aims to underpin sustainable decisions and actions; those that meet our needs, cause no harm and consider long term effects on current and future generations.

Global
Environmental problems and concerns are often global. We must act and think at a global scale and embrace the new dimension of global responsibility.

Our research and training involves many other world class experts around the globe, with skills and knowledge that complement or reinforce our own.

Impact
Our discoveries regarding environmental hazards and pressures have implications for many stakeholders, from legislators to the general public. We therefore have a responsibility to engage and inform as many relevant parties as possible.

The Institute for the Environment has a long standing reputation of working with policy makers, the media, industry, schools and many other groups to disseminate our results for maximum impact and to inform our future research directions.

Key Facts

14 academic staff
19 PhD students
18 PDRAs
45 MSc students every year

Our academic staff have published around 600 scientific papers and have amassed almost 35000 citations between them.

Over the last 5 years our academic staff have secured over 50 research grants from various public and private sectors funders totalling around £5M.
We have successfully worked with

Organisations

AstraZeneca  
Atkins  
British Academy  
British Council  
BP  
CEFAS  
Centre for Ecology and Hydrology (Wallingford)  
ChemTrust  
CSIRO (Adelaide)  
Defra  
European Commission (DG Environment)  
European Commission (DG Research)  
European Environment Agency  
European Food Safety Authority  
Environment Agency  
Food Standards Agency  
GlaxoSmithKline  
Lloyds Register  
Local Councils  
Melbourne Water  
Met Office  
Natural History Museum  
Novartis  
Oak Foundation  
Pfizer  
Plymouth Marine Laboratory  
Royal Meteorological Society  
Royal Society  
Severn Trent Services  
Severn Trent Water  
Syngenta  
Unilever  
United Utilities  
UK Water Industries Research  
WRC  
WWF  

Universities

Amsterdam  
Ankara  
Bremen  
Carnegie Mellon Institute of Green Chemistry  
ETH Zurich  
Gothenburg  
Granada  
Haifa  
Harvard School of Public Health  
Iranian National Institute of Oceanography  
Melbourne  
Massachusetts  
Massachusetts General Hospital  
Max Plank Institute for Meteorology  
Porto  
Rotterdam  
Stockholm  
Technical University of Copenhagen.

An Institute for the Environment PhD student working in our cell culture suite

How can we help you?

If you are a government body or industry with an environmental problem or question, then we have experience, skills, contacts and enthusiasm to research and advise over a huge range of topics. Our track record includes chemical testing of aquatic pollutants, developing new concepts for mixtures risk assessment, regional climatological assessments and air quality tests.

If you are a graduate wanting a career in the expanding environmental sector, then we offer a superb range of taught masters degrees and specialist PhD research degrees. All of our courses provide a springboard into employment, with six month work placements offered to many. We train postgraduates to think sustainably, and to act compassionately and responsibly.
What are our main achievements?

2014
The Institute for the Environment is named as a partner university within the Natural Environment Research Council’s London Doctoral Training Partnership – this is part of the UK’s £100M investment in environmental scientists of the future.

2012
Queen’s Anniversary Prize, a National Honour, for the impact of our work on chemical pollutants, influencing national and international regulation of chemicals.

2008
Brunel University London’s performance in the Research Assessment Exercise cemented its reputation as a leading UK research university, being ranked 37th by Research Power. The Institute for the Environment’s results were equally impressive: 90% of our staff were ranked as “internationally recognised” and 10% of our research assessed as “World leading”.

1993
the BBC Horizon episode “Assault on the male”, which drew heavily on Prof. Sumpter’s research, won an Emmy award and was given a special screening at the White House.

Engagement

Public
We regularly perform outreach activities in schools and at science festivals, we deliver public lectures locally and nationally, such as at the Natural History Museum, and we communicate our research with the local and national media.

Political
Our science regularly informs policy through our direct and indirect engagement with governments and their officials.

Academic
We are active researchers, often organising or presenting at international conferences and symposia and engaging in debates. Many of our academics sit on the editorial boards of international journals and the Peer Review College of national Research Councils in the UK and beyond.

Advisory
Our staff sit on panels that have a major influence including the Confederation of British Industry (CBI), the Intergovernmental Panel on Climate Change (IPCC), the International Quaternary Association (INQUA), the Organisation for Economic Co-operation and Development (OECD), the US Consumer Health Advisory Panel (CHAP), the US National Academy of Sciences (NAS) and the World Health Organisation (WHO).
Dr. Mark Scrimshaw collecting samples with two PhD students from the Institute for the Environment
Research at the Institute for the Environment

Ecotoxicology
page 10

Chemicals in the Environment
page 11

Human Toxicology and Risk Assessment
page 12

Epidemiology and Environmental Health
page 13

Climate Change
page 14

Natural Hazards
page 15
Ecotoxicology

Investigating the impacts of chemical pollutants on wildlife and organisms
Brunel University London has a long history of pioneering research in environmental toxicology with particular emphasis on the causes and effects of endocrine disruption in aquatic wildlife. The group has several important themes:

Chemical effects on the reproduction and sexual development of aquatic organisms, particularly fish and, more recently, molluscs
Thousands of chemicals enter rivers in effluent from sewage treatment works. Many of these chemicals are probably of no environmental concern, but a few are. We focus on those we consider most likely to be of concern and we study their effects on aquatic species, both in the laboratory and the environment.

Amphibian ecotoxicology and endocrine disruption
We have worked with the UK Government Department of Environment, Food and Rural Affairs on the potential for endocrine disruption in native British amphibians, and have contributed significantly to OECD initiatives to develop amphibian test methods for detecting thyroid active chemicals.

Multiple stressors
Our work is now considering the influence of the conditions of exposure on top of the exposure itself. For example, we are investigating factors such as temperature, oxygen levels and food availability.

Contact our experts for PhD or collaborative opportunities:

Prof. Susan Jobling – biological effects of endocrine disrupting chemicals.
susan.jobling@brunel.ac.uk

Prof. John Sumpter – chemicals in the aquatic environment and their effects on fish.
john.sumpter@brunel.ac.uk

Dr. Edwin Routledge – aquatic ecotoxicology (molluscs and fish), molecular endocrinology, endocrine disrupting chemicals, water quality.
edwin.routledge@brunel.ac.uk

Project spotlight
The Institute has collaborated with the pharmaceutical company AstraZeneca for many years and we are currently working on a project to investigate whether or not the effects of pharmaceuticals on fish are similar to the effects that those drugs produce in people taking them. The outcomes of this research could have substantial impact on the environmental risk assessment of pharmaceutical substances, as well as on the development and toxicity evaluation of these drugs.

More information: www.brunel.ac.uk/ife/research-areas/ecotoxicology
Chemicals in the Environment

Understanding the fate and behaviour of chemicals in the environment

With a population of over 60 million, the UK produces around 3.6 billion tonnes of sewage a year (1½ times the volume of Lake Victoria, the largest of all African lakes) – its treatment presents a huge challenge, exacerbated by the occurrence of often hazardous chemicals. Although the concentration of contaminants in this environment is often studied, little is really understood about factors controlling their long term fate and impacts – this is the focus of our research. To tackle this problem, we use chemical measures and bio-analytical techniques to better understand the impact of contaminants.

Clean and clean-up technologies

The development of clean technologies involves optimisation and improved control of chemical reactions in existing processes and the development of new processes to achieve environmentally clean reactions. In particular, our work on the development of a concentrator cell to improve metal recovery systems from dilute solutions for the control of industrial pollution received the Queen’s Award for Environmental Achievement.

Contact our experts for PhD or collaborative opportunities:

Dr. Abdul Chaudhary – development of clean and clean-up technologies. abdul.chaudhary@brunel.ac.uk
Dr. Mark Scrimshaw – fate and behaviour of chemicals in the environment. mark.scrimshaw@brunel.ac.uk
Prof. Rakesh Kanda – exposome science and chemical characterisation. rakesh.kanda@brunel.ac.uk

Project spotlight

Working with the UK Water Industry, Dr Scrimshaw’s research has helped understand how biological wastewater treatment may operate to achieve maximum removal of trace organic and metallic contaminants. Funded by Atkins, the Engineering and Physical Sciences Research Council and Severn Trent Water plc, his team has improved the accuracy of models used to predict the bioavailability of metals in wastewater such that more realistic environmental quality standards (EQS) for metals could be developed that better reflect metal toxicity in real world scenarios.

More info: www.brunel.ac.uk/ife/research-areas/chemicals

COLLABORATIVE RESEARCH NETWORKS

Dr. Mark Scrimshaw is one of our best connected academics. Whilst all our staff are in networks of industrial and academic contacts, Mark’s role as Director of Brunel University London’s Energy and Environmental Sustainability Collaborative Research Network puts him right at the centre of cutting edge developments.

A key example of the work of the Network is an event that Mark organised at Brunel in 2011: “Water Quality: How Clean is Clean?” This influential event brought together decision makers from the UK government, water regulators, industry representatives and leading figures from the research community.
Human Toxicology and Risk Assessment

Dealing with cocktail effects in chemicals regulation and risk assessment

Traditional chemicals risk assessment has a quite artificial orientation: It treats chemicals as if they act in isolation, when in reality there is exposure to multiple substances. We have developed ways of improving chemical risk assessment by taking “cocktail effects” into account. Our work is beginning to influence European Union chemicals regulation, particularly in the area of pesticides and endocrine disrupters.

Hormones and human cancers

Hormones play a role in cancers of the breast, prostate and testes, but how precisely they influence the disease process remains unclear. Our research aims at elucidating the role that hormones and hormone-like chemicals play in cellular and tissue maintenance, carcinogenesis and tumour progression. Dr. Elisabete Silva is developing three dimensional breast epithelial cell culture systems for the study of signalling processes.

Contact our experts for PhD or collaborative opportunities:

Prof. Andreas Kortenkamp – combination effects of chemicals and cumulative risk assessment, hormones and their role in cancer.

andreas.kortenkamp@brunel.ac.uk

Dr. Elisabete Silva – hormones and their role in breast cancer and cell signalling.

elisabete.silva@brunel.ac.uk

Project Spotlight

Andreas Kortenkamp’s team has conducted a State of the Art Assessment for Endocrine Disrupters for the European Commission, DG Environment. The report will form the basis for decision making on endocrine disrupting chemicals in European Union chemicals regulation.

More information: www.brunel.ac.uk/ife/research-areas/human-toxicology
Epidemiology and Environmental Health

Understanding and examining the factors that determine population health risk factors

We focus on population health studies with a particular emphasis on social factors. These are important contributors to environmental health risks like cancer and birth outcomes. Our work also considers occupational risks, by studying metalworking fluids, for example, and environmental exposures, like air pollution. We have also made several important methodological contributions to epidemiology.

Our current research considers the impact of policies on population health change, including EU directives to reduce air pollution, the introduction of smoking bans, political change and transition in restructuring countries and modifications of these impacts by socioeconomics.

Contact our experts for PhD or collaborative opportunities:

Dr. Ariana Zeka – epidemiology, environmental health.
ariana.zeka@brunel.ac.uk

Project Spotlight

Dr. Zeka has contributed to the high profile Cold Weather and Mortality Assessment study. Working in collaboration with Dublin Institute of Technology, Institute of Public Health Ireland and Queen's University Northern Ireland, her preliminary findings show that the effects of cold weather are felt greater in older members of the population (65+ years old). These findings, along with further study, will be presented to the Irish government to support fuel affordability measures for the elderly.

More information: www.brunel.ac.uk/ife/research-areas/epidemiology

SOCIAL IMPACT

Dr. Ariana Zeka originally trained and worked as a primary care physician before pursuing a research career. Prior to arriving at Brunel University London in 2006, Ariana worked at Harvard University and the World Health Organisation.

Her medical experience and rigorous academic background has shaped Ariana’s research career, which has focussed on projects with social impacts. These include: the Cold Weather and Mortality project; an innovative project analysing the interior and exterior air quality at schools near Brunel University London and; investigations into the impact of population displacement.
Climate Change

Investigating the science and impacts of changing climates

We have research expertise in past, present and future climates. Our projects cover field-based, laboratory-based and computer model-based research – this allows us to improve understanding of the climate system and climate change from a number of different perspectives.

We also examine the impacts of climate events. Our work covers a wide range of disciplines including: plant and animal distributions, sedimentary analyses, severe storms and flooding, air quality, pollution, atmospheric physics and energy generation.

Contact our experts for PhD or collaborative opportunities:

Prof. Suzanne Leroy – palynology, sea level changes, environmental reconstruction, palaeoecology.
suzanne.leroy@brunel.ac.uk

Dr. Stephen Kershaw – evidence from rocks to interpret climate change, ancient and recent.
stephen.kershaw@brunel.ac.uk

Dr. Andrew Russell – climate dynamics, climate change, convective storms, extreme weather.
andrew.russell@brunel.ac.uk

Dr. Ariana Zeka – climate change and health.
ariana.zeka@brunel.ac.uk

Project Spotlight

Prof. Leroy and global collaborators are investigating the rapid sea level changes in the Caspian Sea – these changes are around 100 times faster than observed for the global ocean. This research is not only relevant for the populations living along this sea at the eastern edge of Europe, but also for petroleum companies, harbours and the caviar industry. This work has attracted direct funding from BP and the EU.

More information: www.brunel.ac.uk/ife/research-areas/climate-change
Natural Hazards

Assessing impacts of geological and climatic hazards on human civilization

Our natural hazard group conducts research on climate related events such as changes in aquifers, floods, landslides, and severe storms alongside examination of past tsunamis and earthquakes.

We are also investigating the largest mass extinctions on the Earth using modelling and sedimentological/micropalaeontological methods. To detect past events, our approach uses very high time resolution analysis of the sedimentary record.

Contact our experts for PhD or collaborative opportunities:

Prof. Suzanne Leroy – earthquake limnology, rapid climatic and geohazard events and societal response.
suzanne.leroy@brunel.ac.uk

Dr. Stephen Kershaw – earth surface processes to predict time and place of hazards.
stephen.kershaw@brunel.ac.uk

Project Spotlight

The mass extinction project uses data from the rock record to interpret past abrupt changes on Earth’s surface associated with the large-scale destruction of biotic communities. Dr. Kershaw’s work focuses on microbially-related sedimentary rocks, particularly in China, Turkey and Hungary. The research has been performed in collaboration with the Chinese Academy of Sciences, the French National Centre for Scientific Research (CNRS), Universite Pierre et Marie Curie, University of Wuhan, University of Bourgogne, Akdeniz University (Turkey) and the Hungarian Academy of Sciences. Dr. Kershaw has presented this work to wide variety of audiences, including popular science outlets, such as the Natural History Museum, and has developed a website presenting an online atlas of microbial structures in the mass extinction (www.earthsurfaceprocesses.com).

More information: www.brunel.ac.uk/ife/research-areas/hazards

ACADEMIC INFLUENCE

Prof. Leroy has, in recent years, acted as:
• Intergovernmental Panel on Climate Change (IPCC) Expert Reviewer;
• international focus group leader on “Natural hazards and humans” for the International Union for Quaternary Research (INQUA);
• member of the Natural Environment Research Council Peer Review College;
• member of the European Science Foundation Pool of Peer Reviewers and;
• European Union Marie Curie evaluator.

This level of academic influence, which is exemplified by Prof. Leroy, is typical across all disciplines within the institute. We believe that our research is not complete until it has had an impact.
Postgraduate research

Studying for a PhD at the Institute for the Environment

The institute for the Environment offers a vibrant, dynamic, productive and supportive environment in which students can undertake their research degree studies.

Research degrees

Research students in the Institute for the Environment can work towards an MPhil or PhD research degree, full-time or part-time. This involves an in-depth study of a specific subject area that extends the boundaries of current knowledge. On completion of the research programme the student will submit a thesis which is a substantial written report of the research carried out.

Submission of a thesis occurs after about one to two years for an MPhil degree and after about three years for a PhD degree for full-time students (students may also study part-time).

Choosing the topic

Choosing a research topic is usually an interactive process between the candidate and us. Often students have some idea of the general area they would like to investigate. We have outlined the research areas where we have particular interests, expertise and experience on pages 10-15, as well as the contacts for our members of staff – this (or our website) would be a good place to start this process.

Supervision

All research students have a principal supervisor and an additional (second) supervisor. Typically students have most contact with their principal supervisor, with regular meetings on a one-to-one basis. At these meetings the student and supervisor discuss current research activities and plans for the future direction of the work.

In addition to close working contact with the supervisors, research students receive formal training in research methods and participate in our research seminar programme with other research students and academic staff.

NERC Doctoral Training Partnership

As a key member of the NERC London Doctoral Training Partnership, we will be offering fully funded PhD places every year until 2018. This is an excellent opportunity to undertake a research project in the World leading Institute for the Environment, with collaborative opportunities with other leading London research organisations. See http://london-nerc-dtp.org/ for more details.

For entry requirements and further information contact:

Dr. Ed Routledge – edwin.routledge@brunel.ac.uk
www.brunel.ac.uk/ife/research-degrees
Postgraduate teaching and our MSc programmes

Why choose the Institute for the Environment at Brunel University London?

We are a research intensive institute so our staff are all recognised experts in their fields. However, our academic staff are also excellent teachers: half our teaching staff were nominated for the Student Led Teaching Awards (SLTA) in 2012; one of our modules won the Exceptional Module SLTA in 2014; and our student feedback is consistently excellent. The university as a whole is currently climbing key league tables, such as the National Student Survey and the Times Higher Education World University Rankings.

The student to staff ratio within the institute for our MSc courses is usually around 3.5 to 1, which is excellent by any standards.

Teaching from Industry and Academic Partners

Our core teaching is supplemented by guest lectures from external experts and site visits to key industrial players. Where possible, we also encourage and facilitate students to work with outside partners during their dissertation research.

Delivery/Teaching Methods

We combine traditional lectures, lab sessions and seminar teaching methods with field site visits and problem based learning to help you graduate with the knowledge and skills you need to move on in your professional career.

Dissertation

The dissertation is the cornerstone of the MSc, which allows you to apply knowledge from across the modules with guidance of an expert from the Institute. We have opportunities to work with public and private sector partners as part of the dissertation.

PROGRAMME ACCREDITATION

Our Environmental Science and Climate Change MSc programmes are accredited by the Institution of Environmental Sciences (IES) and the Chartered Institution of Water and Environmental Management (CIWEM). Students will benefit from free student membership of IES and CIWEM whilst studying on these accredited courses and consideration for transfer to Graduate or full Chartered membership on successful completion.
MSc in Climate Change Impacts and Sustainability

Why choose Climate Change Impacts and Sustainability at Brunel University London?

This is a multi-school, interdisciplinary programme that explores the likely impacts of global climate change on society and the wider environment. The aim of the course is to provide the knowledge and understanding of how to mitigate our impact on the atmosphere and how to adapt to climate change in a range of contexts.

Content

The specific modules for the MSc in Climate Change Impacts and Sustainability are:

- Global Climate Change
- Sustainable Development in Practice
- Climate Change Policy and Law
- Environmental Hazards and Risk
- Climate and Health
- Biosphere
- Climate Change Adaptation and Mitigation
- Research and Critical Skills
- Dissertation (see page 18)

Employability

Previous students have gone on to work in the energy, transport, mining, heavy and light industrial, service and retailing, financial, marketing and insurance industries or pursue further postgraduate research (see page 16).

“Climate Change is one of the biggest issues we face today, and one of the most complicated. I enrolled in the MSc in Climate Change Impacts to improve my understanding of this important topic, but the breadth and depth of subject area, and diversity of backgrounds of fellow students meant I achieved much more than that! Not only do I feel I have a solid foundation in the science, politics and ethics of climate change, I also gained the confidence and inspiration to start my own business helping others understand climate change, and take action against it.”

Lucinda Gale, MSc Climate Change Impacts and Sustainability

Went on to: set up www.greenfootprint.co.uk, a web business to help people reduce their carbon footprint.

“After too many years working in wholesale finance in the City of London I felt ready to take up a new challenge and align my working life with my personal interests.

What I like about the course is its broad multi-disciplinary nature and the fact that the syllabus has been designed to fit the specific subject domain, rather than extended from a pre-existing MSc.

I was particularly concerned about the challenges of returning to full-time education as a mature student. As it turned out, I was not alone, and academic life, though challenging, has proved to be very rewarding.”

Antony Wright, MSc Climate Change Impacts and Sustainability

Went on to: Director of his own sustainability consultancy, ESE Consulting.
MSc in Environmental Science: Legislation and Management

Why choose Legislation and Management at Brunel University London?

The market leading Master’s course in Environmental Science with Legislation and Management addresses the management principles necessary for the successful implementation of sound environmental management practice and up-to-date legal processes involved in environmental control.

Specialising in Environmental Management and Environmental Legislation, the course bridges the gap between the fundamental scientific and technical data and the management decision-making process. You will also acquire the tools needed for environmental management, including project management, life cycle analysis, accounting and reporting, environmental reviews and audits.

Content

The specific modules for the MSc in Legislation and Management are:

• Environmental Management
• EU and International Environmental Law
• Sustainable Development in Practice
• Global Climate Change
• Environmental Hazards and Risk
• Research and Critical Skills
• Dissertation (see page 18)

Employability

Previous students have gone on to work for environmental consultancies, the EPA, environmental regulators, the Environment Agency, environmental managers, the United Nations, local government departments, BP and KPMG or pursue further postgraduate research (see page 16).

“The course went beyond purely academic study requiring a range of transferable skills to be developed. In particular I feel my presentation skills and ability to communicate increased dramatically as a result of being required to regularly feedback our research to our peers. This has helped me enormously in my current job where I have to speak to a wide range of stakeholders about a range of subjects.”

Ben Larby, MSc Environmental Science: Legislation and Management

Went on to: Schools Coordinator and European Projects Manager for Energy Solutions NW London

Contact and more information

Find out more about this course and apply on our website: http://bit.ly/LMmsc

Past students

“The course was very well structured and offered practical as well as theoretical skills development. All the lecturers and the office staff were very helpful and ready to guide and support the students. The research expertise of many of the lecturers was very helpful in guiding and shaping my career.”

Supriya Hajare, MSc Environmental Science: Legislation and Management

Went on to: study for a PhD in Nanotechnology within the Wolfson Centre Research School at Brunel University London.
MSc in Environmental Science: Pollution and Monitoring

Why choose Pollution and Monitoring at Brunel University London?

This Master’s programme is suitable for graduates or those with relevant experience who wish to develop a career in practical environmental monitoring and control for industry, consultancies and public bodies using applied environmental science.

The course provides a rigorous academic treatment of the fundamental scientific principles and the practice of assessing and controlling the extent of environmental damage caused by humankind’s activities.

Content

The specific modules for the MSc in Climate Change Impacts and Sustainability are:

- Integrated Pollution
- Environmental Monitoring
- Environmental Hazards and Risk
- Sustainable Development in Practice
- Biosphere
- Research and Critical Skills
- Dissertation (see page 18)

Employability

Previous students have gone on to work for the Environment Agency, the chemical industry, the EPA, environmental consultancies and local government agencies or pursue further postgraduate research (see page 16).

Contact and more information

Find out more about this course and apply on our website:

“The main highlight of my programme is my participation in a major research project involving the assessment of dangerous chemical removal during wastewater treatment process. Besides enjoying the support and encouragement of my lecturer and other members of the research team, I was able to also develop key technical experience and insight into the water industry. For me, studying at the institute was not only academically rewarding but enjoyable.”

Anthony Okiemute, MSc Environmental Science: Pollution and Monitoring

Went on to: Recycling Advisor, City of London Corporation, London, UK.

“I’ve always been interested in ecology, environmental issues and their impacts. When I was planning to do postgraduate study in this field, I found out about Brunel, which is ranked as one of the best universities in environment research, and some of best known names in environmental studies are based here.

A big advantage is that the teaching links theoretical knowledge with practical applications. Since I finished my course, I’ve continued to work as a research assistant at the Institute for the Environment.”

Satwant Kaur, MSc in Environmental Science: Pollution and Monitoring

Went on to: study part-time for a PhD in the Institute for the Environment
MSc in Sustainability, Entrepreneurship and Design (with professional development)

The next big challenge for society is to transform our economy to incorporate the principles of sustainability. This presents an exciting opportunity to rethink, redesign and rebuild a positive future for business practice.

Our programme will select the world’s brightest, most entrepreneurial minded graduates and equip them with the two essential ingredients: firstly, the mind-set and ability to play a key role in building a sustainable world – one that is not only prosperous, but also environmentally stable and socially inclusive; and secondly, hands-on experience, such that they can become entrepreneurs, business leaders and innovators.

Course content

Compulsory Modules:

- Introduction to Strategic Sustainable Development
- Entrepreneurship
- Business Planning
- International Business Ethics and Corporate Governance
- Sustainable Design
- Professional Design Studio

Optional Modules, choose any two from:

- Biosphere
- Clean Technology
- Environmental Law
- Climate Change Adaptation and Mitigation
- International Business Strategy
- Logistics and Supply Chain Management
- Design Innovation Futures

Contact and more information

Find out more about this course and apply on our website:

This programme is run in collaboration with the Brunel Business School (winners of the 2013 Times Higher Business School of the Year), the Department of Design and Prof. Karl-Henrik Robert – Blue Planet Award Winner and pioneer of the sustainability movement – from the Blekinge Institute of Technology, Sweden, which is a world-leading institute for sustainability research and training.
MSc in Toxicology and Risk Assessment

With new chemicals regulations in place in the European Union, the demand for new testing and risk assessment strategies will increase considerably. This MSc has been developed to train toxicologists and ecotoxicologist so they become competent in conducting cutting-edge hazard and risk evaluation of chemical substances.

The programme provides students with an advanced and up-to-date understanding of the effects of chemicals on both human and environmental health and the resulting impact on chemical risk assessment and regulation.

Course contents

Students work with ‘real-world’ case-studies derived from the cutting-edge of practice, which are used to illustrate principles throughout the course.

Compulsory modules:
• Priority Pollutants and Human Health Effects
• Essentials in Ecotoxicology
• Designing, Analysing and Interpreting Toxicological Studies
• Carcinogens and Mutagens
• Current Practice in Chemical Risk Assessment
• Chemical Regulation and Legislation in the EU

Optional Modules: (2 out of 3):
• Mixtures Toxicology and Cumulative Risk Assessment
• Reproductive Toxicology and Endocrine Disruption
• Computational Toxicology: Modelling and Predicting Toxicology

Accreditation

The qualification obtained contributes towards the requirements for the UK Register of Toxicologists.

100% of our first cohort of students (2012-13) secured employment or a postgraduate research post as a toxicologist.

“This is a great course for many reasons and I strongly recommend it to anyone interested in toxicology and/or the risk assessment of chemicals.”
Anwen (MSc 2012-13), Graduate Toxicologist, Water Research Centre.

“I truly loved my time studying Toxicology and Risk assessment at the Institute for the Environment.”
Katherine (MSc 2012-13), PhD candidate at the University of Antwerp.

“I had no previous knowledge of toxicology before this course but was still approached by some of the biggest companies in the world – this is a testament to the course and the level of teaching at Brunel.”
Ahmed (MSc 2012-13), Toxicologist, SC Johnson.
Continuing Professional Development (CPD)

Some of the specialised modules of the MSc in Toxicology and Risk Assessment are run as intensive short-courses on 5 consecutive days, so they can be taken individually by participants, without having to enrol for the full course.

The aim is to support professionals already in employment in advancing their knowledge in specific areas, as well as developing their careers. These modules are:

- **Designing, Analysing and Interpreting Toxicological Studies** (Autumn term)
  This module covers the principles of toxicological study design, with an emphasis on setting up a study, analysing and interpreting data.

- **Current Practice in Chemical Risk Assessment** (Autumn term)
  The module deals with the concepts and approaches that are currently used in human and ecological risk assessment.

- **Chemical Regulation and Legislation in the EU** (Autumn term)
  In this module, the general features of relevant EU pieces of regulation are explained, including Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Water Framework Directive (WFD), Plant Protection Products Regulation (PPPR) and Biocidal Products Directive (BPD).

- **Mixtures Toxicology and Cumulative Risk Assessment** (Spring term)
  The module provides an introduction to the basic concepts of mixture toxicology. Here, students have hands-on experience with designing mixture experiments and analysing mixture data.

The credits achieved with these short-courses will contribute to the graduate’s Continuing Professional Development (CPD) and towards the requirements to register or revalidate registration with the UK Register of Toxicologists.

A Postgraduate Certificate (PGCert) is awarded to graduates who complete all four courses successfully.

Institute for the Environment

World class research and training

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