Risk and Disaster Science MSc
2017/18 entry
www.ucl.ac.uk/rdr/

Fukushima nuclear reactor
Japan
The global challenge of understanding risk, increasing resilience and reducing exposure to hazards has generated demand for a new type of scientist, in government, business and NGOs, who can work across boundaries. In a science-led programme, you will learn how to assess and quantify risk, reduce disaster risks and manage emergencies for natural and anthropogenic hazards, humanitarian and health crises, conflict and climate change.

Programme themes

Science of Earth and Space Hazards
- Analyze different hazard risks: seismic and triggered events, space weather, epidemics, conflict and climate
- Scenarios and case studies drawn globally providing breadth of experience

Understanding Vulnerability
- From fragility curves describing damage of buildings to social vulnerability of individuals and society

Statistical and Modelling Tools
- Statistical treatment of risk
- Catastrophe risk modelling

Managing Disasters
- How to apply plans to manage real emergencies

Multidisciplinary Holistic Approaches
- Integrating scientific knowledge into disaster risk reduction research, policy and practice
- Communicating with stakeholders

Teaching and learning

Learn from world-class researchers and professionals delivering the programme through a combination of lectures, class discussions, problem-solving exercises, practicals, field trips, directed reading and a practitioner-led real-time disaster scenario event. There is an emphasis on hands-on learning and tutorial-style dialogue between students and lecturers.

Assessment is by individual and group presentations, coursework, written examinations and a research project.

Why study at UCL-IRDR?

UCL is one of the world's leading universities, regularly featuring in the top 10 in global rankings.

The Institute for Risk and Disaster Reduction (IRDR), leads multidisciplinary research, knowledge exchange and advanced teaching across UCL. We have global, national and local recognition, evidenced by international attendance at our annual Academic Summit, our Annual Conference addressed by the UK Government’s Chief Scientific Advisor, and our training of London Resilience’s gold command. As a student, you will be encouraged to join our active seminar series, high-profile public discussion meetings and the networking events we host.

London is one of the world's great cosmopolitan cities. It is an international hub for global finance and risk management, NGOs, and engineering consultancies. The IRDR nurtures networks across London, and beyond.

“London itself is an unparalleled breeding ground of ideas for anyone interested in research” (MSc student 2015/16).

Careers

Whether you wish to start a new career in risk and disaster reduction or you already have experience, we are here to support you. With an MSc in Risk and Disaster Science you will have excellent academic foundation coupled with practical and analytical skills.

We run an annual Careers and Opportunities Forum which offers expert and targeted advice, and hosts stalls from a range of employers and headhunters in the field of risk and disaster reduction. Our graduates are highly sought-after in the following sectors: insurance, catastrophe modelling, risk management, public policy, humanitarian development, NGOs, business continuity, government, emergency services, consultancy and academic research.

Some career destinations of recent IRDR graduates:
- Disaster Risk Management Consultant, World Bank
- Project Officer, Global Risk Forum, Davos
- Coastal Risk Management Officer, Environment Agency
- Project Officer, Cairo Local Government
- Civil Contingencies Coordinator, UK Local Government
- Field Delegate, Red Cross
- Project Officer, Rescue Global
- Business Continuity Consultant, Arup
- Business Continuity and Resilience Consultant, PwC
- Catastrophe Analyst, Barbican Insurance Group
Programme structure

Modes of study: Full time: 1 year. Part time: 2 years
Students take eight taught modules and an independent research project.
A Postgraduate Diploma comprising eight taught modules can be taken full-time or part-time over two years.
For further information see www.ucl.ac.uk/rdr/

### Degree Programme Modules

<table>
<thead>
<tr>
<th>Two compulsory core taught modules (15 credits each)</th>
<th>Available modules and content may vary</th>
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<tbody>
<tr>
<td>1 Integrating Science into Risk and Disaster Reduction</td>
<td>2 Emergency and Crisis Management</td>
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<tr>
<td>Risk, uncertainty &amp; disasters</td>
<td>Quantitative risk assessment</td>
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<tr>
<td>Science and policy</td>
<td>Communication</td>
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<tr>
<th>Two compulsory taught skills modules (15 credits each)</th>
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<tbody>
<tr>
<td>1 Risk and Disaster Reduction Research Tools</td>
<td>2 Research Appraisal and Proposal</td>
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<td>Statistical methods</td>
<td>Hypothesis testing</td>
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<tr>
<td>Programming in R</td>
<td>GIS</td>
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<tr>
<th>Two compulsory programme-specific core modules (15 credits each)</th>
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<tbody>
<tr>
<td>1 Earthquake Science and Seismic Risks</td>
<td>2 Space Weather Risks</td>
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<td>Statistical seismology</td>
<td>Satellite observation (inSAR)</td>
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<td>Monitoring &amp; modelling faults</td>
<td>Landslide/volcano triggering</td>
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<th>Two optional taught modules (15 credits each) from</th>
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<tr>
<td>1 Catastrophe Risk Modelling</td>
<td>2 Digital Health: Epidemics and Emergencies</td>
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<tr>
<td>Probabilistic modelling</td>
<td>Seismic, flood, wind hazards</td>
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<td>Physical vulnerability</td>
<td>ODA country case-studies</td>
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<tr>
<th>3 Decision and Risk Statistics</th>
<th>4 Conflict, Humanitarianism &amp; Disaster Risk Reduction</th>
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<tr>
<td>Statistical treatment of risk</td>
<td>Parameter estimation</td>
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<td>Expected losses</td>
<td>Bayesian decision making</td>
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<tr>
<th>5 Climate Risks to Hydro-ecological Systems</th>
<th>6 Seismic Risk Assessment</th>
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<tr>
<td>Climate risk assessment</td>
<td>Terrestrial hydrology</td>
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<tr>
<td>Aquatic eco-systems</td>
<td>Glacial environments</td>
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### Independent Project (60 credits)

The independent research project culminates in a 10,000 to 12,000 word dissertation and poster presentation. Projects may be laboratory, field, theory or modelling based and can be conducted in collaboration with external partners including industry, international research organizations or NGOs.

### Field studies and group working

Current field visits include: the Thames Barrier and disaster management; Cambridge flood hazard; a disaster scenario exercise with NGO Rescue Global; the Blacknest Seismological Observatory; the Met Office; Southwest England for integrated group projects covering hazard mapping, hazard modelling, vulnerability assessment, and critical infrastructure assessment, with Hinkley Point nuclear power station as an example.
MSc Risk and Disaster Science
Key information
Programme starts
September 2017
Modes and duration
Full time: 1 year
Part time: 2 years
Tuition fees (2017/18)
UK/EU: £9,840 (FT) £4,970 (PT)
Overseas: £22,850 (FT) £11,800 (PT)
Scholarships
UCL offers a selection of scholarships for supporting postgraduate studies. Details of funding opportunities can be found at: www.ucl.ac.uk/scholarships
Application dates
Open: 3 October 2016 Close: 28 July 2017
Note on fees: The tuition fees shown are for the year indicated above. Fees for subsequent years may increase or otherwise vary. Further information on fee status, fee increases and the fee schedule can be viewed on the UCL Current Students website.
Optional qualifications: This degree is also available as a PG Diploma with fees set accordingly.
Location: Central London (Bloomsbury)
Entry requirements
Normally a minimum of an upper second-class UK Bachelor's degree in a relevant science discipline, engineering or mathematics, or an equivalent overseas qualification.
Mathematics requirements
Mathematical methods taken in science or engineering degrees is sufficient. (Enquire if in doubt.)
English language requirements
If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency.
The English language level for this programme is: Standard
Further information can be found on our website.
International students
Country-specific information, including details of when UCL representatives are visiting your part of the world, can be obtained from the UCL International Students website.