



Risk and Disaster Science MSc

2020/21 entry

www.ucl.ac.uk/rdr/



UCL Institute for Risk
and Disaster Reduction



Indonesia earthquake

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.

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. 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).

Programme themes

Science of Earth and Space Hazards

Analyse different hazard risks: seismicity, space weather, epidemics, conflict and climate

Scenarios and case studies drawn globally providing breadth of experience

Statistical and Modelling Tools

Statistical treatment of risk

Bring together data and theory

Understanding Vulnerability

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

Quantifying Risk

What is risk and how do we measure it?

Components of risk: exposure, hazard, vulnerability

Multidisciplinary Holistic Approaches

Integrating scientific knowledge into disaster risk reduction research, policy and practice

Communicating with stakeholders

Managing Disasters

How to apply plans to manage real emergencies



Scenario exercise with a partner organisation

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 academia.

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, student-led dialogue, and a practitioner-led real-time disaster scenario event.

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



Research work in the laboratory

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
- Field Delegate, Red Cross
- Global Engagement Fellow, Interpeace
- Resilience Technical Officer, International Medical Corps
- Project Officer, Rescue Global
- Emergency Information Management Specialist, Plan Nepal
- Business Continuity and Resilience Consultant, PwC
- Business Continuity Consultant, Arup
- Catastrophe Analyst, Barbican Insurance Group
- Analyst, RMS (Risk Management Solutions)
- Reinsurance Claims Management Executive, AXA Global Re, Paris
- PhD Student, NERC London Doctoral School

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

Two compulsory core taught modules (15 credits each)

1 Integrating Science into Risk and Disaster Reduction

Quantitative risk assessment Risk transfer & communication

2 Emergency and Crisis Planning and Management

Command procedures Warning and evacuation

One compulsory programme-specific core modules (15 credits)

1 Risk Analysis for Disaster Science

Earthquake science Statistical geophysics

Two compulsory taught skills modules (15 credits each)

1 Data Analysis and Interpretation

Statistical methods R & GIS

2 Practice and Appraisal of Research

Research methods Project design & management

Three optional taught modules (15 credits each) from

Non-IRDR optional modules are marked with an asterisk ()*

1 Catastrophe Risk Modelling

Probabilistic modelling Hazard & physical vulnerability

2 Digital Health: Epidemics and Emergencies

Early warning & response Surveillance systems

3 Space Weather and Technological Failures

Satellite vulnerability Risks to critical infrastructure

4 Business Continuity Management and Organisational Resilience

Managing operations Supply chain disruptions

5 Conflict, Humanitarianism & Disaster Risk Reduction

Humanitarian response Conflict and crises resolution

10 Gender, Disaster and Conflict

Gender responsiveness Structural vulnerabilities

7 Natural and Anthropogenic Hazards and Vulnerability

Scientific causes Social & economic vulnerability

8 Advanced Emergency and Crisis Planning and Management

Methodology and techniques Policy and legal contexts

9 Decision and Risk (Statistics) *

Statistical treatment of risk Bayesian decision making

Risk and Disaster Science MSc Space Risks Pathway

See Pathway brochure for Space Science modules

All optional modules are subject to availability and particular modules may not be possible in any given year.

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 a partner organisation; the Blacknest Seismological Observatory; the Met Office; Southwest England for integrated group projects covering hazard mapping, vulnerability assessment, and critical infrastructure assessment, with Hinkley Point nuclear power station as an example.

IRDR Programmes:

Risk, Disaster and Resilience
MSc

Risk, Disaster and Resilience
MSc Management Pathway

**Risk and Disaster Science
MSc**

Risk and Disaster Science
MSc Space Risks Pathway

Risk and Disaster Reduction
MRes

Risk and Disaster Reduction
PhD

Admissions Contact

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IRDR

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Web: www.ucl.ac.uk/rdr

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MSc Risk and Disaster Science

Key information

Programme starts

September 2020

Modes and duration

Full time: 1 year

Part time: 2 years

Tuition fees (2020/21)

UK/EU: £11,830 (FT) £5,975 (PT)

Overseas: £24,980 (FT) £12,470 (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. Further advice and programme-specific scholarships information can be obtained from the Masters Programmes section of the IRDR website.

Application dates

Open: November 2019 Close: 28 August 2020

Note on fees: The tuition fees shown are for the year indicated above. Fees for subsequent years may increase or otherwise vary. Further information can be viewed on the UCL Current Students website.

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.



Credit: Nevalenx