Key teaching staff* and their research interests

Department of Geography	
Professor Roger Moore	Geohazards, slopes and landslides, seismic-geomorphology
Professor Michael Davies	Soil mechanics and slope stability
Dr John Barlow	Geospatial mapping and image analysis
Professor Julian Murton	Quaternary geology and permafrost
Dr Cherith Moses	Coastal and karst geomorphology; rock weathering and building stone decay
Dr David Robinson	Soil erosion, land degradation and coastal geomorphology
Professor Mark Lee	Landslide risk and geohazards
Professor David Norbury	Engineering geology
Dr Andy Mills	Marine geology and sedimentology

Industry collaborators	
CH2M Hill	Dr Paul Fish - Quaternary geology and GIS Alex Bellis - Fluvial and upland geomorphology Ross Fitzgerald - Coastal and subsea geomorphology
Royal Haskoning Ltd	Dr Nick Cooper - Coastal planning and engineering David Brew - Coastal geomorphology
Arup	Dr Mathew Free - Geological hazards and tsunamis Jason Manning - Remote sensing
Mott MacDonald	Peter Phipps - Terrain analysis, coastal and drylands
Atkins	Dr Andrew Hart - Engineering Geomorphology Stephen Fort - Engineering Geology and Landslides

*Subject to change
Programme details subject to development

For more information

www.sussex.ac.uk/study/pg/2011/taught/1660/23690
Geography: www.sussex.ac.uk/geography
Global Studies: www.sussex.ac.uk/global

If you are considering studying with us then please contact the MSc and CPD programme co-ordinator:
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University of Sussex

The Geological Society
endorsed training course

Cover image: St Catherine's Point, Wight Light Gallery

University of Sussex

Postgraduate and Professional Programme in Engineering Geomorphology, Consultancy & Practice

MSc in Engineering Geomorphology

CPD training courses in Engineering Geomorphology

University of Sussex

Context

- Meet stakeholders from industry and hear about the issues and challenges they face and how engineering geomorphology can help
- Develop observational, analytical and assessment skills for field, laboratory and office-based work
- Learn how to characterise landforms, materials and processes
- Gain an understanding of geomorphological hazards, their impacts, and ways to mitigate them
- Prepare professional reports and presentations
- Learn about project management, HSE, design codes and standards
- Develop your professional training plan towards chartered status

Earth surface processes and natural hazards pose significant challenges to society, development and construction. The expansion of global population and urbanisation, coupled with the potential impacts of climate change on natural processes, are anticipated to result in more frequent natural disasters and risk to development. Engineering geomorphology is used to evaluate the opportunities for sustainable development and engineering through cost effective mitigation of natural hazards and risk. The MSc is a unique course for graduates and professionals that integrates academic and commercial training with real case work.

Course aims

To develop graduates and professionals for practice in industry, combining practical field, laboratory and office-based skills training and project work for a wide range of applied geomorphology applications.

Why study geomorphology at Sussex

Geography at Sussex was established in the early 1960s and has strong interdisciplinary links. It has an outstanding reputation in geomorphological research. In the 2008 Research Assessment Exercise, the department was placed in the top 9 in terms of the quality of its publications and in the top 13 in terms of its overall research quality. This means that 95 per cent of research activity in Geography is rated as being world-leading, internationally excellent or internationally recognised.

The appointment of Professor Roger Moore, an internationally recognised expert in industry and director at CH2M Hill, to guide the development and teaching of the course will provide students with a unique insight into real-world projects from a commercial consultancy. This highly vocational course will train students in the core tasks of a typical commercial project.

MSc at a glance

Field Observation; Geomorphological Mapping

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Terrain Analysis; Digital Mapping

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Soil and Rock Description; Site Investigation

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Interpretation; Ground Models

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Geomorphological Processes

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Forcing and Predictive Change Models

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Geohazard Risk Analysis and Communication

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Risk Mitigation, Planning and Engineering

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Project

Course outline

This course has a unique modular structure, and can be studied full-time, part-time over two years, or by taking individual modules for CPD credit. Each module comprises full-time field or laboratory teaching over one week followed by a week of independent project work that can be completed at Sussex or (for part-time and CPD students) at your workplace. It is possible to accumulate CPD credits towards the eventual completion of an MSc.

Field observation and geomorphological mapping – Develop your field observational and mapping skills during a week-long field trip of 'South Coast Landslides' on the Isle of Wight and Jurassic Coast, Dorset. The course will provide practical experience of geomorphological field mapping methods, review of current research and

consultancy work, and provide an opportunity to meet local stakeholders.

Terrain analysis and digital mapping – Visualisation, interpretation and synthesis of spatial datasets is an essential requirement of geomorphological assessment. This module will review the various sources of remote sensing and digital mapping data, software and interpretation methods, and thematic map outputs typically required of commercial projects.

Soil and rock description – Learn about methods of site investigation, logging of sections and rock core, sedimentology, stratigraphy, structure and soil and rock testing. Project work will comprise demonstration of soil and rock description in the field and laboratory, soil characterisation and testing, and preparation of factual reports.

Ground models – Developing ground models and their calibration with field data is a key part of geomorphological assessment. Review the various methods, data sources, analysis tools, and presentation methods of real case work. Develop your own conceptual ground model for a site of choice, and prepare a concise report and presentation.

Geomorphological processes – Learn about the complexities of geomorphological processes that pose hazards and shape landscapes, including mass movement, glacial and permafrost, fluvial, dryland, coastal and subsea processes. Review current research themes, monitoring and assessment methods, temporal datasets, and analyse event frequency and magnitude, an essential input to risk analysis.

Forcing and predictive change models – Future forcing of geomorphological processes and landform change are essential for quantifying hazard and risk. Consider the scale and potential impacts of natural and human forcing, and ways in which these can be factored into predictive models of landform change processes.

Geohazard risk analysis and communication – Assessment of the hazards and risk to society, development and construction projects is often a key requirement of applied geomorphology projects. Review risk analysis methods and case work on how the results are communicated and acted upon by various stakeholders.

Risk mitigation, planning and engineering – Review the approaches for management and mitigation of natural processes, geohazards and risk, including planning and development controls, monitoring and dissemination, and engineering measures.

Project – Over the summer term students will carry out an independent project on any aspect of the course. Each student will have access to an 'industrial supervisor and placement'. The project will be presented to the MSc course convenors prior to final submission.

Career opportunities

Successful completion of the course will provide essential skills training and experience to professionals looking for a career in applied geomorphology and associated disciplines in industry and research. The MSc qualification and training will provide postgraduates with enhanced prospects of employment with a wide range of organisations, including:

- Engineering and environmental consultancy firms
- Central and local government
- International funding agencies
- Agencies and utility companies
- Applied research organisations

Entry requirements

A first or upper second-class undergraduate honours degree in geography, geology, engineering or natural sciences. Applicants with relevant professional experience are also welcomed.

Funding opportunities

The Department has a limited number of scholarships available for this course; students are encouraged to apply.