MSc(Res) Polar and Alpine Change

Postgraduate study.
We're a dynamic and vibrant international community of geographers, committed to tackling some of the biggest issues in our changing world.
Welcome.

Our research and teaching works across the boundaries of physical sciences, social sciences and humanities to understand and to tackle complex global challenges. Our Geography degree programmes engage with the most important issues of our time such as climate change, international development, global inequalities and environmental sustainability.

The Department of Geography is a world-leader in teaching and research and has had tremendous impact on the discipline of Geography since it was founded more than 110 years ago. Today, Sheffield is ranked within the top 15 UK departments (REF 2014) and the top 50 in the world (QS 2019). The impact of our research is recognised as world-leading or internationally excellent.

The department is housed in an award-winning, purpose-built building on the edge of Weston Park, lying close to the University Library, the Students’ Union and central lecture theatres. Our modern facilities include analytical, sediment and microscopy laboratories, teaching laboratories and IT suites, as well as a field centre in Tanzania.
This programme provides internationally recognised research training for a career in cold-regions science or a related field.

Students undertake a polar, alpine or Quaternary focussed research project of their choice, with topics typically falling within the fields of glaciology, geomorphology, climatology, environmental science or Quaternary science, though exploration of other aspects of cold-regions science is encouraged.

Graduates of the programme are typically highly competitive in UK and international PhD funding competitions, with half to two-thirds of graduates overall securing a PhD or research-centred career.

Training is provided in the form of a research apprenticeship within the Ice and Climate Research (ICERS) cluster. This community of academic and postdoctoral staff, plus PhD and Masters students, are engaged in research of international quality that spans the fields of process glaciology, palaeoglaciology, Quaternary science, geochronology, oceanic and atmospheric processes, climate reconstruction, climatic change, process geomorphology, and long-term landscape evolution, with a particular focus on polar and alpine regions.

Students on the programme are mentored through the process of developing and executing their research project by a team of up to three ICERS staff who also provide any additional training that may be required.

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UNIQUE FEATURES

**Advanced scientific research training** and project experience that develops highly specialised, substantive knowledge of, and skill to conduct research into, a chosen field within the broad remit of cold-regions science.

**Attendance at research seminars and other ICERS group activities,** which provides insight into the latest research techniques and the findings of ICERS group members, as well as those of scientists working on cold-regions topics at other institutions across the world.

**A core overseas field class** that provides training and experience in field planning and research in a polar or alpine destination. Field locations include Greenland and Svalbard, where students can gain direct insight into polar and alpine change issues and experience first hand the application of glaciological, geomorphological, hydrological and environmental analysis techniques.

**Access to international research networks and collaborations** developed by ICERS staff, including long-established collaborations with polar and alpine scientists working in Switzerland, Greenland, Norway, Iceland, Nepal and China.

**State of the art facilities for geographical data analysis,** including facilities for Geographical Information Science, Remote Sensing, Structure from Motion photogrammetry, Matlab programming, and numerical modelling. Well-equipped cold-regions research laboratories, providing facilities for sediment and geochemical analyses.
COURSE STRUCTURE

Central to the programme is a year-long research project, during which students conduct original and independent research that is expected to make a significant contribution to their chosen field. As in doctoral research, students receive close supervision as they develop and execute their projects, and benefit from presenting their developing ideas and initial findings to staff members of the ICERS research cluster.

A first-semester research design module provides guidance on the development of research ideas and culminates in the production of a formal project proposal. Another first-semester module uses the external seminar series as a basis for discussion of research approaches and the development of critical analysis and research communication skills. The field class takes place in the summer.

YOUR CAREER

The unique level of research training and experience in polar and alpine change that is provided by our MSc(Res) programme is widely recognised and our graduates have been extremely successful in securing PhD study and employment in research-centred careers.

Our alumni have gone on to secure competitive PhD (and, subsequently, postdoctoral and academic positions) at research-intensive UK institutions that specialise in cold-regions research, and further afield, including Norway and Sweden. Other alumni have begun successful careers in the UK as environmental professionals, amongst a diverse range of other career destinations.

Most, though not all, applicants are strongly interested in a research career. Essentially, this means progression, after their masters, through a PhD and into an academic position (i.e. as a post-doctoral researcher or lecturer) whose occupation is to undertake research that pushes the frontiers of knowledge. A key strength of the MSc(Res) programme is the year-long research experience it provides, which enables students to learn how to do research by doing it — albeit in a shorter duration than a PhD.

Research-career development for our students is therefore embedded in our programme, through career sessions on "How to apply for a PhD" and the personal tutoring system, which are run by the Programme Director with the input of other ICERS staff.

We want you to realise your research potential, so we support your development as a scientist throughout your course. We also continue to provide reference letters to support your PhD applications after you graduate.

We can support you with interview preparation and provide opportunities to network with researchers in your field, as academics from other institutions regularly visit us to give seminars.

We take your ambitions seriously. Whatever you want to do, wherever in the world you choose to build your career, we can help.

FIELD CLASS

The Arctic/Alpine field class is an integral part of the programme and normally takes place in the summer. The course combines taught sessions with group research, aiming to provide substantive knowledge of the location visited and relevant research approaches and techniques, as well as experience of project development, field application of research skills and techniques, and analysis and communication of research findings.

Group work undertaken by students in previous years included meteorology, glacier hydrology, glacier hydrochemistry, ground penetrating radar studies of glacier structure and glacial geomorphology, and glacier reconstruction using geomorphological evidence and relative dating techniques. ICERS staff have wide field experience in polar and alpine locations, and recent field class locations have included Greenland and Svalbard.
As a Polar and Alpine Change student at Sheffield you will benefit directly from the unique mix of research and field experience accumulated by ICERS group members. You will be able to take advantage of their extensive knowledge of appropriate research approaches, techniques, facilities and field locations, and their knowledge of the most recent developments in their fields.

Active areas of research include:

**GLACIOLOGY AND PALAEOGLACIOLOGY**

Study of the properties and structure of glaciers and ice sheets, and the flow and evolution of present and past ice sheets.

**OCEANIC AND ATMOSPHERIC PROCESSES**

Study of oceanic and atmospheric processes, structures and circulation patterns, including their influence on local and regional climates and extremes, on ice sheet evolution and iceberg trajectories, and on current climatic trends.

**PROCESS GEOMORPHOLOGY AND LANDSCAPE EVOLUTION**

Study of weathering and sediment transport rates and processes and the resulting landforms on current to million-year timescales and across glacial, periglacial, palaeoglacial and dryland environments.

**QUATERNARY SCIENCE AND GEOCHRONOLOGY**

Study of the timing of past climatic and non-climatic events from their geomorphological record, including luminescence and cosmogenic isotope dating of glacial, periglacial, Holocene and dryland landforms and deposits.
Join the world class.

Education is for everyone, for life
Wherever you are in your career and your life, if you’re ready for a world-class masters we’d love to hear from you.

Our greatest strength is each other
Sheffield is an inclusive, supportive community where people of all ages, backgrounds and nationalities study together. You can’t have a world-class university without this kind of openness and diversity.

You have to think global
We use our knowledge to help the whole planet, so there’s a global dimension to everything we do. This clarity of purpose is why a degree from Sheffield is so highly respected.

We believe in you
You’re part of the next generation of professionals who will change society for the better. Our job is to prepare you for that. We’ll push you to amaze yourself and we’ll support you every step of the way.

THE SHEFFIELD EXPERIENCE
There aren’t many cities in the UK that can surprise you like Sheffield. For a big city to have such a strong sense of community is unusual. Then there’s the fact that a third of the city is inside the Peak District National Park, an area of outstanding natural beauty.

Most of our student accommodation is in one of Sheffield’s nicest residential areas, a short walk from campus. For an urban university, this is pretty special. As well as en suite apartments, we also have houses – near good schools – for students with families.

At the heart of everything is our students’ union, ranked No1 in the UK for ten years running*. All your support services are based here. There are over 400 student societies to try out or join, hundreds of sports teams and one of the UK’s biggest student volunteering programmes.

With a little guidance from us and lots of freedom to explore, you’ll find this all adds up to a unique experience, one that sees you form strong relationships with your fellow students, deepen your ties to the community and discover what it means to be part of something.

*Times Higher Education Student Experience Survey 2009–2018

GLOBAL LEARNING OPPORTUNITIES IN THE SOCIAL SCIENCES
As part of the Faculty of Social Sciences, students in our department can take part in exciting initiatives like our Global Learning Opportunities in the Social Sciences (GLOSS) scheme. GLOSS gives students the chance to apply to attend major international summits like the G20. In recent years, students from our department have attended the Global Land Forum in Indonesia and World Urban Forum 9 in Malaysia.

Find out more here: sheffield.ac.uk/gloss

FUNDING
We value talent, which is why we invest in scholarships (£4m in 2018–19) for exceptional UK and international students. Government loans are available for UK and EU masters students studying eligible courses. And if you did your first degree at Sheffield, you could get a discount on your tuition fees.

Find out more about loans, scholarships and other funding here: sheffield.ac.uk/postgraduate/taught/funding
Entry requirements.

For the MSc(Res) Polar and Alpine Change programme we require applicants to possess:

- A minimum of a good 2:1 undergraduate degree achieving a mean final examinations mark of 64.5 from a UK university, or an international equivalent, in relevant subject areas including (but not restricted to) Physical Geography, Environmental/Earth/Ocean Sciences, Geology, Physics, and Natural Science.
- Evidence of engagement with and/or aptitude in geoscientific research. Applicants are urged to justify their credentials in this regard in their Personal Statement and to upload a Research Document (e.g. their undergraduate dissertation, or a similar report documenting the results of independent research) with their application.
- International students are required to attain IELTS 7.0 overall with at least 6.5 in each component.

The Department is committed to a policy of equality of opportunity in the application process and wishes to ensure a diversity of students on its courses. We therefore particularly welcome applications from people from non-standard academic backgrounds, from people with relevant employment experience, from minority ethnic students, from women, from mature students and from students with disabilities.

sheffield.ac.uk/geography