

NEW FOR 2024/25

Talks
Practicals
Workshops

Geography Environmental Science

Masterclasses and
Taster Sessions for
Years 11–13

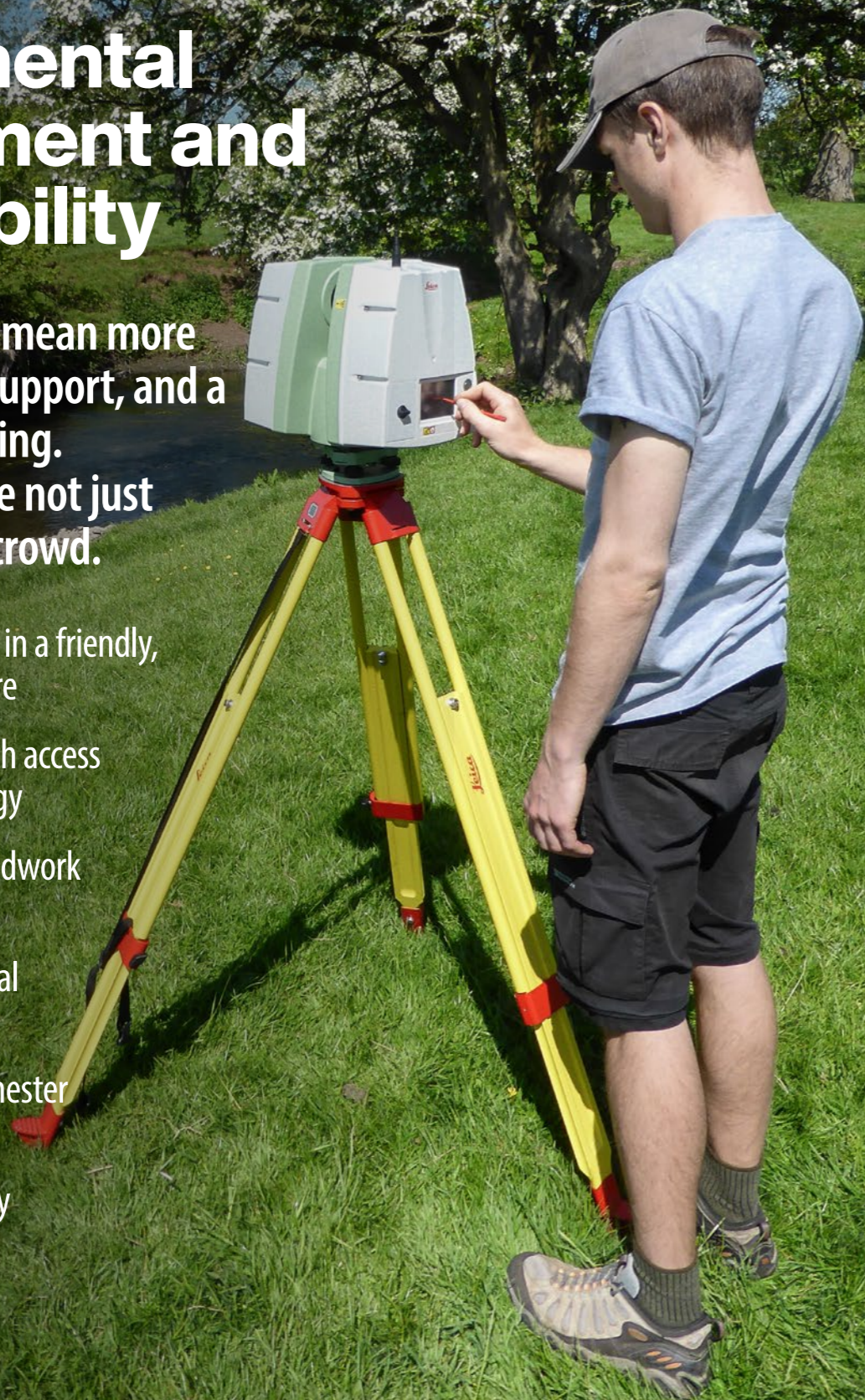


UNIVERSITY *of*
WORCESTER

Geography Environmental Management and Sustainability

Our small class sizes mean more interactivity, more support, and a real sense of belonging. At Worcester, you are not just another face in the crowd.

- ✓ Small-group teaching in a friendly, supportive atmosphere
- ✓ Highly interactive, with access to the latest technology
- ✓ Local and regional fieldwork in most modules
- ✓ Fully funded residential field courses
- ✓ Option to spend a semester or year abroad
- ✓ A strong employability emphasis throughout



Welcome

Looking for some engaging, innovative activities for your Geography and Environmental Science students? If so, we have just what you are looking for!

All our activities are designed and delivered with the hallmark enthusiasm and interactivity for which our Geography and Environment courses are renowned.

We also offer activities you will not find anywhere else. What about exploring glacial environments using a VR headset? We have you covered for this, and a whole lot more besides.

Please get in touch so we can discuss your requirements.

Des

Des McDougall
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Find out more at an
Open Day.



UNIVERSITY of
WORCESTER

Activities: What you need to know

> Free!

We do not charge for any of our activities. In return, all we ask is that you circulate details of our open day events from time to time.

> Up to two activities per institution

To manage demand, we normally place a limit of 2 activities per institution in any one academic year. We also have a preferred lower limit of 15 students for an activity. Some schools combine year groups to reach this threshold.

> Activities are subject to availability

For high demand topics (e.g. hazards), we may not be able to accommodate all requests. Please submit your requests as early as possible to avoid disappointment.

> In-person activities at your school

For those activities that do not require specialist equipment, we may be able to run a session at your school or college. We offer this to institutions within a reasonable travel distance from Worcester. Please contact us to discuss your requirements.

> In-person activities at the University

We prefer to welcome students and teachers to the attractive University of Worcester campus in St John's, just west of the city centre. This allows us to make the most of our up-to-date facilities in the School of Science and the Environment.

> Online activities

We offer a small number of online activities for those schools and colleges more distant from Worcester.

> Book a session

You can make an enquiry by completing the form (QR code on this page) or by emailing Des McDougall (d.mcdougall@worc.ac.uk).

Book now



forms.office.com/e/F2xZMr4LeZ

>> Go to form



Geography Careers

Des McDougall



Geography graduates have some of the best employment rates. This is because their impressively wide range of knowledge and skills makes them very attractive to employers. This interactive talk, which can be delivered in person or online, explores the range of careers options open to Geographers. In addition to helping students who may be thinking about higher education, it is also relevant to those about to choose A-level subjects.

Free Geography careers poster for your classroom (whilst stocks last).

ONLINE
OPTION

YEAR 11
option

FREE
POSTER

Environmental Science Careers

John Dutton



Graduates with a background in environmental science are in high demand as the world transitions to a green economy. In addition to specialist knowledge and skills, environmental professionals have a key role to play in influencing organisational-level decisions. This is reflected in the trend to appoint professionals to senior posts. In addition to helping students who may be thinking about higher education, it is also relevant to those about to choose A-level subjects.

ONLINE
OPTION

YEAR 11
option

We are leaders in the use of VR for teaching Geography

Why not request
one of our VR
sessions?

Explore in VR

Sustainable development
in Africa

Climate change and
mountain glaciers

Proglacial rivers and
channel change

Glaciers and landscape

Coastal landforms

All resources produced by staff in the Department of
Geography and the Environment. We use VR in a range of
ways, including supporting our extensive
fieldwork programme.

Ideal
enrichment
activity



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WORCESTER

Walk on a glacier in VR

Des McDougall



This immersive virtual field trip takes students to the Moiry glacier in SW Switzerland. Here, they will walk from the car park upvalley and onto the glacier. On the route, they will see impressive moraines from the Little Ice Age, ice-smoothed bedrock (and some excellent striations!), talus (scree) and slope failures. There is also evidence for human modification of the landscape.

Ideal enrichment activity

ONLINE OPTION

YEAR 11 option

AQA topics:

Glacial systems and landscapes; Geography fieldwork investigation (skills); Geographical skills

OCR topics:

Glaciated Landscapes; Climate Change

Edexcel topics:

Glaciated Landscapes and Change; Fieldwork

Climate change and glaciers in the European Alps

Des McDougall



Glaciers in the European Alps are retreating at an alarming rate, which has implications for those who rely on them and the meltwater they release. What does the geological record of past glacier fluctuations and climates tell us about the significance of the current situation? This talk explores climate change over a range of timescales, from the Last Glacial Maximum (~22,000 years ago) through to the present day. No prior knowledge of glaciers is required.

This session can be supplemented with a GIS activity on glacier change in the Alps.

ONLINE OPTION

YEAR 11 option

Suitable for Environmental Science

AQA topics:

Glacial systems and landscapes; Water and carbon cycles

OCR topics:

Glaciated Landscapes; Carbon and water cycles; Climate Change

Edexcel topics:

Glaciated Landscapes and Change



Using high resolution drone data to assess the dynamics of fluvio-glacial landforms in an Alpine environment

Ian Maddock



Fluvio-glacial landforms in proglacial environments can undergo significant and rapid erosion and/or deposition due to changes in climate and from human activity, e.g. hydropower operations. This practical exercise will use high resolution 3D models created with drone imagery to quantify the amounts of sediment erosion and deposition and river channel change in an Alpine stream using GIS and geomorphic change detection software. The practical will also include virtual reality fieldwork through the use of 360° videos. The requirement for specialist facilities means this activity is delivered on the St John's campus of the University.

AQA topics:

Glacial systems and landscapes

OCR topics:

Glaciated Landscapes

Edexcel topics:

Glaciated Landscapes and Change

VIRTUAL REALITY

CAMPUS ONLY

Ideal enrichment activity

Suitable for Environmental Science

KEY



Interactive talk or lecture



Practical (e.g., computer lab, workshop)



Virtual Reality (using headsets and computers)



Length (indicative timing, may be flexible)



Explore Cwm Idwal in VR

Des McDougall



1 hr 10 mins

Cwm Idwal is a classic cirque situated within the Eryri (Snowdonia) National Park in North Wales. This immersive virtual field trip explores the range of glacial and periglacial landforms present. Other than the cirque itself, students will see ice-smoothed bedrock, a glacial trough (U-shaped valley), moraines, rockfall, and—on the summit—blockfield and tors. This activity can also be used to support and extend in-person fieldwork at this popular site.



AQA topics:

Glacial systems and landscapes; Geography fieldwork investigation (skills); Geographical skills

OCR topics:

Glaciated Landscapes

Edexcel topics:

Glaciated Landscapes and Change; Fieldwork

Explore Helvellyn in VR

Des McDougall



1 hr 10 mins

Located in NW England, the Helvellyn Range is well-known for its classic landforms of glacial erosion. This exercise provides an opportunity to explore the core area, focussing on Grisedale, Red Tarn and Helvellyn itself. In addition to spectacular cirques, arêtes, and glacial troughs, students will also be able to see moraines produced during the Younger Dryas (12,900 – 11,700 years ago), the last time glaciers were present in upland Britain. This exercise is ideal preparation and/or follow-up to in-person fieldwork, but it also works as a standalone activity (e.g. to support GCSE students).



AQA topics:

Glacial systems and landscapes; Geography fieldwork investigation (skills); Geographical skills

OCR topics:

Glaciated Landscapes

Edexcel topics:

Glaciated Landscapes and Change; Fieldwork

Investigating coastal slope failures using VR

Cheryl Jones, Des McDougall



3 hrs

There are two components to this activity. Firstly, students are introduced to coastal slope failures and the study area in an interactive lecture. This is followed by a practical in a computer suite, where students use a VR resource to visually assess and classify a coastal slope failure in southern England.



AQA topics:

Coastal systems and landscapes; Geography fieldwork investigation (skills); Geographical skills; Hazards

OCR topics:

Coastal landscapes

Edexcel topics:

Coastal Landscapes and Change; Fieldwork

Coastal management in the UK

Cheryl Jones



3 hours

Coastal areas are environmentally sensitive and economically valuable. The need to develop holistic and sustainable risk management approaches to coastal areas has been recognised. This talk reviews different approaches and investigates solutions for a sustainable management of the coastal zone. The talk is followed by a practical session based on conflict and collaboration of stakeholders using the case study of managed retreat.

AQA topics:

Coastal systems and landscapes

OCR topics:

Coastal landscapes

Edexcel topics:

Coastal Landscapes and Change



Photo: Doc Searl (Flickr)

Predict or prepare: seismic hazards

Cheryl Jones



This session analyses global trends in earthquake fatalities. It identifies common themes that exacerbate the impact of natural hazards, and considers where and why these turn into disasters. This will be followed by a practical session based upon the HeyWired Earthquake Scenario. A GIS exercise based on mapping live earthquake data is also available, providing the session is delivered on campus.

AQA topics:
Hazards; Geographical skills

OCR topics:
Hazardous Earth

Edexcel topics:
Tectonic Processes and Hazards



AQA topics:
Hazards

OCR topics:
Climate Change

World on fire: wildfires

Cheryl Jones



This talk examines the human and natural causes of wildfires, with specific reference to the 2023 events. Students explore the relationship between wildfire intensity, frequency, and climate change. This is followed by an interactive debate on the ecosystem approach to wildfire mitigation.



Global management of the carbon cycle with Earth Observation and GIS

Fleur Visser



Human activities, such as deforestation and farming, have an impact on the Carbon Cycle, by changing carbon flows and soil and nutrient stores. The best tools to measure and manage these impacts on a global scale are Earth Observation and GIS. Students will use satellite images to map changes in forest cover, look at areas of afforestation and deforestation and calculate rates of change over time.



AQA topics:
Water and carbon cycles; Ecosystems under stress; Geographical skills

OCR topics:
Carbon and water cycles

Edexcel topics:
The Carbon Cycle and Energy Security

Earth Observation: Imaging a changing planet

Fleur Visser



Earth Observation (EO) is becoming an ever more important source of data for both human and physical geographers. Satellites produce images covering large parts of our planet, while in contrast drones can show the Earth's surface in great detail. During this session you will look at the uses, advantages and disadvantages of the different EO techniques and learn how images can be used to observe changes such as the retreat of glaciers, the extent of flood water and the growth of cities.



AQA topics:
Water and carbon cycles; Glacial systems and landscapes; Hazards; Ecosystems under stress; Population and the environment; Geographical skills

OCR topics:
Glaciated Landscapes; Carbon and water cycles; Hazardous Earth

Edexcel topics:
Glaciated Landscapes and Change; The Water Cycle and Water Insecurity



Soils and the Environment

Cheryl Jones



Students are provided with a practical introduction to soil formation processes, the factors influencing soil development, and the interpretation of soil profiles. This session includes a series of laboratory activities on soil texture, structure, pH, colour and strength.



AQA topics:
Hazards

OCR topics:
Climate Change



AQA topics:
Water and carbon cycles

OCR topics:
Carbon and water cycles; Climate Change

Edexcel topics:
The Carbon Cycle and Energy Security

The science and politics of the climate crisis

Sian Evans, Matt Smith



The climate crisis is undoubtedly a human problem, with humans both as drivers of climate change and as those likely to be impacted by it. This session relates directly to UN Sustainable Development Goal 13 (Climate Action) and first looks at the physical basis of global warming and then explores some of the political challenges and barriers to an integrated response in the UK and globally. Sessions only covering the science or the politics of climate change can be arranged.



Javan Green Magpies at Chester Zoo: how spore monitoring helped the captive breeding and release programme

Beverley Adams-Groom



Javan Green Magpies are critically endangered in the wild. Chester Zoo is running a captive breeding programme to help them but ran into difficulties when the Javan Green Magpies fell ill with aspergillosis, triggered by airborne fungal spores. This talk provides a case study explaining how environmental sampling was able to determine the source of the spores, thus allowing the zoo to make essential changes. This activity includes a microscopy practical that looks at the spores found.

AQA (Environmental Science) topics:
Difficulties in keeping a captive breeding population; sampling techniques



Wildgoose Nature Reserve: setting conservation priorities

Beverley Adams-Groom



Wildgoose Nature Reserve, although small, has a great diversity of habitat, including wetland, sandy areas and woodland. The site, which was formerly a sand and gravel extraction pit, was recently acquired by a care farm, after decades left to its own devices. The care farm and stakeholders have many decisions on how best to manage the site for wildlife, while also providing ecosystem services. This case study provides insights into the processes required to make conservation management decisions.



AQA (Environmental Science) topics:
Setting Conservation Priorities

Setting biodiversity conservation priorities: processes, considerations, implications

John Dutton



Setting biodiversity priorities has always been important for effective conservation management. However, with the impact of global climate change, the awareness of biodiversity crisis, and the recognition of the value of biodiversity and ecosystem services to human kind, this is now more important than ever. This masterclass will examine the traditional tools for identifying priorities and will compare these to emerging issues and considerations for future priority setting. Students will discuss how their thoughts and priorities may differ from those of others.

AQA (Environmental Science) topics:

Setting conservation priorities

ONLINE
OPTION

ONLINE
OPTION

Habitat conservation and biodiversity sustainability

John Dutton



This session explores what habitat conservation actually involves and why much of conservation, especially in the UK, requires active management. The link between the conservation of habitats and individual species within habitats will be discussed. It also explores traditional site-based management for conservation, the concept of landscape-scale conservation and links to ecosystem services and sustainability of biodiversity.

AQA (Environmental Science) topics:

Habitat conservation; The importance of ecological monitoring in conservation planning; The control of ecological succession in conserving plagioclimax habitats; How population control and the management of desired and undesired species affects the conservation of biodiversity

Species adaptations to environmental conditions: case studies and discussion

John Dutton



Using case studies and online research exercises, this workshop explores the adaptation of species to their environment, the relationship between these and the species' distribution, and how it may be necessary to include this during conservation decision making.

AQA (Environmental Science) topics:

How adaptation to the environment affects species' habitat requirements and influences conservation decision-making





Ecological monitoring: traditional techniques and new technology

John Dutton



New technology is delivering exciting techniques that make ecological monitoring more efficient and more accurate. This includes the acquisition of data that previously would have been difficult if not impossible to obtain. However, losing sight of more traditional techniques would be a mistake as these are well-proven and provide fundamental baseline information. This session explores the juxtaposition of more traditional techniques and emerging technologies in the context of ecological surveying and monitoring. This interactive session includes a lecture, discussion, and an eDNA practical.

AQA (Environmental Science) topics:

The development of new technologies for ecological monitoring; Scientific methodologies; Sampling techniques; Standard environmental techniques

CAMPUS ONLY

Planning an ecological monitoring programme

John Dutton



Using a suitable part of a school's campus or a neighbouring field site, this workshop allows students to explore and discuss what they might monitor, why it may be important to do so, and how this could be undertaken using either traditional sampling techniques or by employing new technologies.

AQA (Environmental Science) topics:

Scientific methodologies; Sampling techniques; Standard environmental techniques; The development of new technologies for ecological monitoring





Planning sustainable cities

Heather Barrett



We live in an increasingly urban world and a key global challenge is how cities are planned to develop in ways that are sustainable, equitable, and resilient. This activity explores how planning addresses these key challenges of urban development in British cities. It examines what a sustainable urban future means in practice and whether current planning approaches support this goal. The talk (40 mins) provides opportunities for discussion of current planning issues. This is followed by an optional practical planning exercise (40 mins).

AQA topics:

Changing places; Contemporary urban environments

OCR topics:

Changing Spaces; Making Places

Edexcel topics:

Regenerating Places

Exploring urban sense of place

Heather Barrett



Place is an important geographical concept, but what makes up the essence of a place and how do we go about investigating place meanings? This talk (40 mins) explores urban places and considers how the city acts as a repository of multiple values and meanings. It also considers the multiple and contested ways in which we experience urban life and how we make sense of the city. The talk can be extended with an optional practical exercise on 'sensing the city' (40 mins).

AQA topics:

Changing places; Contemporary urban environments

OCR topics:

Changing Spaces; Making Places

Edexcel topics:

Diverse Places



Global agricultural systems

Nick Evans



This session provides an overview of global agricultural systems and their relationship with human and physical resources. It covers types of agriculture and the challenges facing the world to feed 9 billion people by 2050. The challenges presented by climate change and to soil health will be covered using examples. The concept of food security will therefore be explained and prospects given for the future of food.

AQA topics:

Population and the environment

OCR topics:

Future of Food

Edexcel topics:

The Water Cycle and Water Insecurity

Understanding rural places

Nick Evans



This session is about how we can 'do geography' in rural places of the developed world. It provides some facts and myths about rural towns and villages using music, art, literature and film. It covers what to investigate when out in the field, such as social inequality, community, globalisation, economic change and sustainability. Regeneration, rebranding and diversification of rural places can also be discussed.

AQA topics:

Changing places

OCR topics:

Changing Spaces; Making Places

Edexcel topics:

Regenerating Places; Diverse Places; Fieldwork



Sustainable development in Sub-Saharan Africa

Alan Dixon

1 hr 20 mins

Africa is not a country, and a 'one-size fits all' approach to development has largely failed to improve the living standards of the rural poor throughout the continent. Drawing on recent field research experiences in Ethiopia and Malawi, this talk explores what makes a development intervention sustainable, and in particular what it takes to create long-lasting win-win outcomes for both people and the environment. This activity is available as a lecture (40 mins) or a lecture plus practical, which uses VR (1 hr 20 mins).

Ideal enrichment activity

VIRTUAL REALITY

AQA topics:

Ecosystems under stress; Global systems and global governance; Changing places; Resource security; Population and the environment

OCR topics:

Climate Change; Future of Food

Edexcel topics:

The Water Cycle and Water Insecurity; Health, Human Rights and Intervention



Wetlands are not wastelands!

Alan Dixon

40 mins

In this session we explore changing views on the global importance of wetlands, in particular their role in the water and carbon cycle, and their contribution to biodiversity, people and culture. We discuss the current environmental and development challenges facing wetlands, and explore different approaches to their sustainable management.

Suitable for Environmental Science

AQA topics:

Water and carbon cycles; Ecosystems under stress

OCR topics:

Carbon and water cycles

Edexcel topics:

The Water Cycle and Water Insecurity

Whose land is it anyway? Human-wildlife conflict in Africa

Alan Dixon

1 hr 20 mins

In this interactive session we discuss the on-going tensions between people and the environment in Africa, that often pitches conservation concerns against human development needs. Drawing on a case study of wild animal crop-raiding in western Ethiopia, students are asked to engage in a role-play exercise to highlight different stakeholder concerns, before discussing potential sustainable solutions to this problem.

Suitable for Environmental Science

AQA topics:

Ecosystems under stress; Population and the environment

OCR topics:

Future of Food

Campus visits

Why not arrange a campus visit for your students? We can arrange a bespoke programme for a half or full day.

CONTACT:

Des McDougall
Schools and Colleges
Liaison Officer
d.mcdougall@worc.ac.uk

Ideal enrichment activity

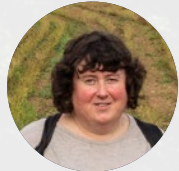
Worcester

STUDENT CITY
VIBRANT CITY
HISTORIC CITY
CONNECTED CITY

Worcester offers all the benefits of a big city combined with the community spirit and safety of a smaller town. When you want to take a break, idyllic Worcestershire countryside and the Malvern Hills are within easy reach.

Meet the team

Academic Staff



Dr Heather Barrett
Urban Geography



Dr Cheryl Jones
Natural Hazards, GIS,
Geology



Dr Beverley Adams-Groom
Aerobiology,
Palynology



Dr Des McDougall
Glaciers, Mountain
Environments



Prof Alan Dixon
Environment and
Development



Prof Ian Maddock
Hydrology and River
Conservation



Dr John Dutton
Biodiversity
sustainability and
conservation



Dr Matt Smith
Biogeography,
Environmental Science



Prof Nick Evans
Rural Geography



Dr Fleur Visser
GIS, Earth Observation,
Fluvial Geomorphology



Dr Sian Evans
Sustainability,
Gender

Support Staff



James Atkins
GIS, Geophysics and
Surveying



Heather Taylor
GIS and Laboratory
Facilities



Dom Howard
Fieldwork and GIS



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