

# Notes to HKU applicants

Please indicate **at least two projects** from the Leeds pre-defined list and indicate your choices on your HKU Laidlaw Scholars Programme Application Form.

**For your 1<sup>st</sup> preferred project, please prepare 1 detailed research proposal as part of your HKU Laidlaw Scholars Application.**

In case your 1<sup>st</sup> preferred project is oversubscribed, the HKU Horizons Office may contact you to revise your research proposal based on your 2<sup>nd</sup> choice.

For enquiries, please contact HKU Laidlaw Scholars Programme by email ([laidlaw@hku.hk](mailto:laidlaw@hku.hk)).

# Creative Climate Education

## Academic Lead – Dr Ariana Phillips-Hutton

### *Project Description: (1 PLACE AVAILABLE)*

The climate crisis is widely acknowledged as a ‘wicked problem’ that will require the best and most creative minds from all disciplines to come together to address. Creative Climate Education asks: how can we ensure that those who study the arts are equipped to contribute to resolving this global challenge?

In this project, you will investigate how research and education in the arts intersects with the climate crisis through the lens of values such as justice, equity, and care. You will engage with current research through conducting a broad literature review and a deep-dive into curriculum design. You will think through the roles of artists and educators, investigate best practice, and imagine new ways for arts education to engage with the climate crisis, both here at Leeds and further afield. You will also bring your own creativity to the project, for example by designing a ‘how-to’ guide presenting future opportunities for arts-based climate education. You will not only gain a deeper understanding of the role of creative education, but by harnessing your skills you will also make a lasting impact on both policy and practice.

### *Person Specification:*

The successful Scholar will be a self-starter, persistent in the face of challenge, able to work to deadlines, and possessing good verbal communication skills. Skills in synthesising and summarising information will support the literature review process.

A passion for the arts and for education are essential, experience in the arts (not necessarily as a formal area of study) is desirable.

# Reimagining Electrophysiology Teaching for Neuroscience Undergraduates through a Design-Thinking Approach

## Academic Lead – Dr Clare Tweedy

*Project Description: (2 PLACES AVAILABLE)*

Electrophysiology is the study of the electrical properties of biological systems. Within the context of neuroscience, this includes how the resting membrane potential of neurons is established and how action potentials are generated and propagated. A range of approaches are currently used to teach electrophysiology in neuroscience including traditional lectures, computer simulations, data analysis, and hands-on practical experience. Despite this, electrophysiology is still regarded as a “threshold concept” – challenging and complex, yet transformative to a learner’s approach to neuroscience once mastered.

This research project aims to first evaluate the current strategies used to teach electrophysiology at the School of Biomedical Sciences and across the sector. By employing a design-thinking approach, the scholar will empathise with key stakeholders (including students, academics, and graduate employers) to define the challenges. Following this, the project will move into the ideation phase by generating solutions and recommendations based on your findings. This project will provide you with experience in the design-thinking process and allow you to take a creative approach to shaping the future of neuroscience education.

*Person Specification:*

A basic understanding of the electrical properties of neurons (resting membrane potential and action potential) is required, though a specific background in neuroscience is not essential. To excel in this project, the scholar must demonstrate effective communication and time management skills, as well as the ability to take initiative and drive the project forward. To aid with the evaluation stage of the project, organisation and critical evaluation skills will be particularly useful. A creative approach to problem-solving will be advantageous for the design-thinking framework, although no prior experience with this process is necessary.

# Education for Sustainable Development: Scoping Animal Welfare Legislation and Policy across North Africa and the Gulf

## Academic Lead – Dr David Lewis

*Project Description: (5 PLACES AVAILABLE)*

Are you passionate about Global issues, Sustainable Development, UN Sustainable Development Goals (SDG), and animal welfare? Do you want to contribute to making a real difference in the World? If yes, this scholarship is for you!

Animals are used in research to create solutions to the many complex issues facing humankind, including improving human and animal health and wellbeing (SDG3,8), developing new medicines (SDG3), and animal conservation (SDG15). However, the extent of laws governing this research across the World is unknown.

This is where you come in. We would like the Team to look at laws, regulations, policy and other information to find out what animal welfare laws, policies and ethical review processes exist across North Africa and the Gulf.

This information will be used to adapt the professional education courses (SDG4,17) we currently run in Africa, making them suitable for, and enabling us to provide similar courses to colleagues in North Africa and the Gulf. Providing these courses will enhance animal welfare (SDG3) and support researchers across North Africa and the Gulf to undertake high-quality science (SDG8 & 9) for the benefit of humankind.

This is a desk-based team project. Available for 4 scholars, any discipline, Faculty or University.

*Person Specification:*

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***Person Specification:***

Discipline or subject-specific knowledge is irrelevant. This scholarship is **OPEN TO STUDENTS FROM ANY DISCIPLINE, FACULTY OR UNIVERSITY**, with up to five places available. It is desk-based so could be undertaken remotely from anywhere in the world. No travel is required.

It is critical that the team's principal output, the spreadsheet of laws and regulations in each country or State, is **100% accurate**. Therefore, it requires scholars with the right skills and mind-set. You need to be diligent, methodical, process driven. Somebody who is willing to only complete part of the project but can guarantee that that information is **100% correct**, rather than somebody who rushed through to cover all relevant countries, but the information is unlikely to be correct.

Information may sometimes be hard to find. You will need to be resilient, show initiative, with excellent creative problem solving, planning, organisation, and information recording competencies (knowledge, skills, and behaviours).

It is a team project. You will need to be a team-player, willing and able to work in interdisciplinary teams, but also always thinking (and actioning) how you can support your team-mates in their learning and activities (there is no I in Team). If you don't communicate and work effectively together as a team, the output will not have the **100% accuracy** required.

North Africa countries are francophone, where, in addition to Arabic, French is spoken rather than English. The Gulf States are Arabic. Therefore, if one or more scholars can understand written French or Arabic, this would be advantageous but not essential. Similarly, expertise in law, policy or related areas (or of reading/analysing such information) would also be advantageous, as would at least one scholar having a background in biomedical sciences or animal welfare or animal biology.

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***Person Specification:***

We don't expect you all to have this expertise but would like to create a Team where, between you, you had all the required expertise and skills.

You will be potentially communicating with senior leaders in North Africa and the Gulf. You will need to be respectful, culturally aware, socially orientated, empathetic and have emotional maturity.

This scholarship is desk-based so there is no commitment to travel. It will require excellent wi-fi connectivity. It could also be undertaken remotely (ie from a place of your choosing).

All of the above could be demonstrated by where you have led or played a significant part in a project outside of your comfort zone. Full training will be provided for all aspects of the work, as will leadership development support as required.

# **Investigating the Role of Alpha-Synuclein Charge in Synaptic Vesicle Fusion and Neurotransmitter Release: A Mass Spectrometry Approach**

## **Academic Lead – Dr Dinesh Kumar Chinthapalli**

### *Project Description: (1 PLACE AVAILABLE)*

This research project aims to identify key electrostatic interactions that facilitate synaptic vesicle fusion with alpha-synuclein. To achieve this, the scholar will conduct a thorough review of recent literature to provide context and highlight the significance of the research objectives. Guided by the research supervisor, the scholar will prepare protein and lipid samples for native mass spectrometry (nMS) and ion-mobility mass spectrometry (IM-MS) experiments. The scholar will be responsible for collecting data from these analyses, performing detailed data processing and interpretation, and deriving meaningful insights into the electrostatic interactions that govern synaptic vesicle fusion.

Additionally, the scholar will actively participate in scientific discussions with colleagues within the research group, contributing to brainstorming sessions and collaborative idea generation in the field. Upon completion of the project, the scholar is expected to write and prepare a comprehensive report suitable for publication, effectively communicating the findings and their implications for the broader scientific community in understanding synaptic vesicle fusion mechanisms.

### *Person Specification:*

The scholar with an enthusiasm towards structural biology and neurodegenerative diseases and/or neuroscience with Biological Sciences or Biochemistry or Analytical chemistry background will excel in this project. It is desirable that they can demonstrate ability to work independently after providing guidance. The applicant will need to be able to work as part of a larger team but demonstrate they can take initiative and be responsible for their own experiments.

# Inverse Problems and International Competition

## Academic Lead – Prof Daniel Lesnic

*Project Description: (3 PLACES AVAILABLE)*

Each week the scholar will be given some material to read and research in order to gain insight into the subject of inverse problems. The scholar will have to synthesise the material and realise the connection with the teaching material covered in courses currently taken and beyond the standard curriculum.

In addition, in order to develop and enhance the scholar's mathematical skills and background they will have to attempt to solve a series of 5-10 selected problems mainly in mathematical analysis and algebra. Some of these problems may involve some unseen material beyond textbook and occasionally, will have some research material attached to it, e.g. writing a literature review, reading and understanding a research article, presenting the subject in a coherent and logical manner, etc. At the weekly supervisory meetings, solutions attempted by the scholar and other aspects of research will be analysed and discussed in detail.

*Person Specification:*

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***Person Specification:***

The project will require a dedicated, motivated and talented student with high first-class mathematics results (in A-levels or 1st year undergraduate) in Algebra and Analysis (essential), and Geometry and Combinatorics (desirable).

The project will seek to shape future leaders in research by guiding a dedicated first-class student to undertake research and prepare to take part and travel in the International Mathematics Competition (IMCs) for University students to be held for a week in Bulgaria in July-August 2025, see <http://www.imc-math.org.uk>.

Over the past 30 years, students from more than 200 institutions and over 50 countries all over the world have participated in this series of competitions (organised by the University College London). In many ways, they mimic the Olympics event in sport.

The stock of accumulated knowledge, research experience and leadership development will enable the scholar to undertake future postgraduate studies.

# Transforming 0D into 3D by Bespoke Direct Laser Writing

## Academic Lead – Dr Jaemin Lee

*Project Description: (TWO PLACES AVAILABLE)*

Despite advances in laser-based 3D printing, there are still remaining challenges in the recycling of materials, formation of multi-material structures and thermal management in materials during processing. In this short-term project, the Laidlaw scholar will aim to address critical challenges in conventional powder bed fusion (PBF) technology by investigating printing conditions and chemical and mechanical properties of the 3D printed structures. The student will have an exceptional opportunity to lead experiments using the unique, customised PBF 3D printer recently developed at the University of Leeds and readily available for this project. Specifically, the student will investigate how laser can transform 0D or 1D materials (e.g. powders) into 3D structures, characterise the final 3D printed structures, and think about how we can effectively recycle the materials after the process for sustainability.

At the beginning of this project, we will discuss together and decide on what application(s) we will study. Examples will include (but not limited to) medical implants, soft actuators, metal parts in aerospace engineering and automobiles, free-standing electrodes for sensory devices and novel stretchable conductive circuitry for batteries and solar cell. You will be able to address several challenges in sustainable development strategies in the UK as well as the UN's Sustainable Development Goals.

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***Person Specification:***

**A strong passion and interests in innovative materials engineering and smart manufacturing will be important for this project. Good communication skills are essential for the personal development and successful completion of this research project. Having experience in CAD software such as SolidWorks will benefit the students and help them accelerate the project although this is not mandatory.**

# Evaluating Current Methods for Enhancing Clinical Computer Tomography (CT) Imaging Using Contrast Agents

Academic Lead – Dr James Warren & Dr Marlène Mengoni

## *Project Description: (1 PLACE AVAILABLE)*

In the UK, nearly 20% of people suffer from chronic musculoskeletal disorders, with younger patients increasingly facing joint issues from trauma, obesity, and lifestyle factors, complicating traditional joint replacement. Contrast-enhanced computed tomography (CE-CT) imaging is essential for visualising joint structures in detail, supporting tailored interventions; this project will optimise contrast agent selection to improve imaging precision, enhancing treatment planning and revealing soft tissue health more effectively.

This project will conduct a comprehensive investigation of both current and previously utilised clinical contrast agents in CE-CT imaging. The objective is to collate and map the various contrast agents employed by clinicians and research groups across the field. By systematically reviewing and categorising these agents, the project will focus on their specific interactions with tissues and their effectiveness for microscale imaging.

These research outputs will contribute directly to the creation of more detailed patient profiles, enabling clinicians to customise interventions based on each patient's unique joint anatomy and condition. This enhanced imaging insight will facilitate more accurate patient-treatment matching and support the development of personalised, less invasive MSK treatment strategies. These strategies could help delay or even prevent the need for full joint replacements, improving overall patient outcomes and quality of life.

## *Person Specification:*

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***Person Specification:***

The scholar should possess the following necessary requirements: excellent communication skills; self-starting; shows initiative; highly organised; works independently; good time management; critical and objective thinking; shows genuine enthusiasm for the project. The scholar will be searching for, reviewing and evaluating literature on contrast enhanced CT imaging so will need to show initiative and critical thinking.

Further to this the scholar will need to be highly organised to ensure they thoroughly review the literature in a systematic and methodical manner. The scholar will be conversing with academic and clinical colleagues around the process of CT imaging so will need excellent verbal and written communication as well as good time management skills.

The scholar should possess some of the following desirable requirements: knowledge of the human body; an interest in biomechanical behaviours of the human body, some knowledge of or interest in medical devices (what they are and why they are used – such as hip replacements), some knowledge of or interest in what clinical imaging is.

# Curriculum Decolonisation and Improving Sustainability in Undergraduate Chemistry Teaching Laboratories

## Academic Lead – Dr Keith Livingstone

*Project Description: (2 PLACES AVAILABLE)*

Academic research is made possible by a diverse international community, and it's important that undergraduate degrees reflect the diversity and societal challenges experienced by this entire community. Historically, Western university courses have disproportionately promoted the discoveries of people who are predominantly white, male and speak English as a first language. This has stimulated recent efforts in many universities to ensure that their curricula give appropriate acknowledgement of people from different social, political, and geographical contexts.

In this research project, you will work in the School of Chemistry to investigate opportunities to improve the curriculum of the undergraduate teaching labs. First, you will investigate the existing experiments in terms of their environmental sustainability and the language used in their instructions to highlight some areas for improvement. Then, you will have the opportunity to test out any ideas that you have in the laboratory, either investigating the effect of modifying an existing experiment, or by introducing a new one. You will be working as part of the pedagogic research team and will have regular opportunities to update them on your findings and ultimately work together to design a framework to assess the experiments based on their relevance to the global scientific community.

*Person Specification:*

The applicant must have experience in an undergraduate chemistry teaching lab, or an equivalent teaching lab in biology, physics, engineering, etc. A basic level of knowledge of organic chemistry is also essential.

The applicant will be based on-campus at the University of Leeds.

# **STEMbedding: A Global, People-Centred Approach to Embedding Sustainability in the STEM Curriculum: Putting STEM at the Heart of SySTEMic Change**

**Academic Lead – Dr Pierre-Philippe Dechant**

*Project Description: (5 PLACES AVAILABLE)*

You will have the opportunity to collaborate with local and global partners to embed sustainability in the STEM curriculum. You will work on finding out what students care about and would like to study around sustainability, what experts and global partners think about sustainability, and how one could collaborate in order to create meaningful materials for the curriculum. Embedding sustainability in the curriculum will equip future Leeds students to contribute their creative problem-solving abilities to help address fundamental global challenges such as the climate crisis.

The leadership phase of the Scholarship would be about ensuring that your findings have maximal impact. Potential stakeholders you could engage with include home and international students at Leeds, the LUU, the IDEA Centre (InterDisciplinary Ethics Applied), the Priestley Centre for Climate Futures, the Leeds Institute for Data Analytics (LIDA), and the Sustainable Curriculum team, as well as at the University of Pretoria, Witwatersrand, South-West Jiaotong University or Xian-Jiaotong Liverpool University. Communication training could be arranged to help maximise wider impact.

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***Person Specification:***

**Essential:**

shows genuine enthusiasm for sustainability and the role of the STEM sciences within it

subject knowledge in STEM sciences: will be working on transforming the traditional curriculum so will need some subject knowledge

excellent communication skills: will be conducting interviews with a wide range of people

self-starting; shows initiative; highly organised; works independently: will be pursuing independent research with a view to achieving maximal impact through the implementation of their recommendations

an interest in people's motivations and global perspectives: an appreciation of and respect for different attitudes to sustainability and science in different global contexts (cultural humility)



# Deploying Novel Electrical Systems to Eliminate CO2 Emissions From the UK Railway Network

## Academic Lead – Prof. Robert Kelsall

### *Project Description: (1 PLACE AVAILABLE)*

Transportation is a major source of CO2 emissions due to the continued predominance of petrol and diesel-powered vehicles. Despite decades of successful electric train operation, less than 40% of the UK rail network is currently electrified. Meanwhile, the rail network is already the country's largest single electricity customer, hence a shift to full electrification would represent a significant increase in electricity demand.

Researchers at Leeds are working with the rail and power industries to demonstrate new electrical systems which will support cost-effective railway electrification via deployment of battery-powered trains and will enable the rail and power networks to function co-operatively in order to optimise railway power demand and accommodate competing power needs.

This Laidlaw project will involve assessing which rail routes could benefit from the new “Energy Hub” technology and developing case studies of representative examples: reporting on travel distances and service frequencies involved, including proposals for the location and electrical capacity of Energy Hubs and estimating savings in CO2 emissions and fuel costs.

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***Person Specification:***

You should have high levels of self-discipline and self-motivation and be able to work unaided and unsupervised for several days at a time.

You should have an enquiring mind and high levels of initiative, and be willing to investigate, study and analyse according to your own ideas and perceptions.

You should have strong analytical skills – both quantitative and qualitative: you should be able to assess complex scenarios - identifying important features, collecting, processing and evaluating relevant data.

You should have good numeracy skills and be competent in the use of Excel. You should have a basic knowledge of electricity and electrical circuits – for example, that acquired via A-level Physics.

# Exploring AI Literacy in Engineering Education: Insights on Agency

## Academic Lead – Dr Siti Ibrahim

### *Project Description: (1 PLACE AVAILABLE)*

The emergence of artificial intelligence (AI) has significantly impacted various sectors, including engineering education. Rapid advancements in AI have established it as a valuable tool in teaching and learning environments and industry. The integration of AI is widely discussed, with concerns that avoiding its use could disadvantage students. While AI is a powerful tool when used correctly, it can also pose risks if misapplied. Both students and academics are still determining the best practices for its use and the ethical implications involved. Challenges include maintaining academic integrity and ensuring students' genuine voices, essential skills, and agency are not lost.

This study examines students' and academics' literacy, confidence, and perceptions regarding AI in teaching and learning. It employs mixed methods, combining qualitative and quantitative approaches. Literature searches and surveys are the primary methods for gathering information. The collected data will be analysed using appropriate statistical methods to gauge agency attainment. The outcomes will contribute to best practices and provide confidence for students, academics, and university management on the effective use of AI in educational tasks. This also aims to prepare students for careers in the evolving industry landscape. The findings are expected to be translated into a short report for dissemination.

### *Person Specification:*

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***Person Specification:***

Attributes required are:

1. **Excellent Communication Skills** - Ability to convey information clearly and effectively as the study involves conducting a survey.
2. **Self-Starting and can Work Autonomously** - Demonstrates a proactive approach to tasks and responsibilities and takes the initiative without needing constant supervision. Demonstrate reliability and accountability in completing tasks.
3. **Shows Initiative** - Innovates and suggests improvements to enhance project outcomes.
4. **Highly Organised** - Efficiently manages time and resources to meet deadlines.
5. **Shows Genuine Enthusiasm for the Project** - Passionate about the project's goals and objectives. Motivated to contribute positively and make a meaningful impact.

As the project is looking to explore ways to enhance engineering education, this will be most suitable for an engineering background scholar.

# Deployment of Ion-Exchange Fluoride Capture and Recovery Technology in an Area of High Geological Fluoride Abundance

## Academic Lead – Dr Thomas Robshaw

### *Project Description: (1 PLACE AVAILABLE)*

Fluoride pollution in drinking water is a significant threat to public health and safety in many parts of the world. Previous work has investigated an ion-exchange system, which has demonstrated promising performance for fluoride removal and enrichment from a certain industrial wastewaters. We now need to assess whether this technology can be transferred and implemented in an alternate context.

The scholar will help lead the design and development of an ion-exchange technology, which will contribute to safe drinking water, generate recovered chemicals of value, and be implemented internationally. They will conduct research over three stages. The first involves adapting methodologies to synthesise the ion-exchanger. The second, testing and benchmarking the material. The third, building small-scale equipment for use at international sites of fluoride contamination. The solution must be end user-focussed and the scholar will therefore liaise throughout with our international project partners in Tanzania.

The intention is for the scholar to visit Tanzania for a short secondment, during the research placement, and also to conduct their 'Leadership in Action' component there in 2026, overseeing a pilot programme for implementing the technology. This project will suit a student who wants hands-on experience in chemistry, analytical science, engineering and project-management.

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***Person Specification:***

The ideal candidate for this project will have either an engineering, physical sciences, or environmental science background. Basic mathematical and IT competency is essential.

Some experience working in a laboratory environment would be beneficial, but not essential; enthusiasm and willingness to learn experimental and analytical techniques is more important. Any experience with process-modelling software would be valuable, but again, not essential.

Online and in-person meetings with a diverse project team will be crucial to project success. Therefore, a high standard of spoken communication is necessary.

The scholar should ideally be willing to travel internationally during the research period, although there will be some flexibility on exact dates. They must be prepared to integrate quickly into a new research environment and culture, forming new networks and relationships, to get maximum benefit from the international visit.

# Alternative Economic Visions From Your Culture

## Academic Lead – Dr Alice Damiano

*Project Description: (2 PLACES AVAILABLE)*

Economics courses teach how to manage resources through concepts like supply and demand, profit maximisation, and efficiency. However, outside economic textbooks there is a variety of cultural environments ruled by other principles, such as wellbeing, equilibrium, or relationship with nature. Do you feel that your cultural background is ruled by ideas that clash with the principles you learnt in economics classes? This research project is an opportunity to explore these differences.

You will organise and carry out interviews and/or focus groups with members of your community, discussing how, in their view, resources should be managed, and what they see as the goals of society. You will then collaborate with your academic supervisor to analyse these qualitative data, reflect on how these visions can be compared and contrasted with economic principles, and how the discipline of economics can be challenged and enriched by visions coming from different cultural backgrounds.

This position is open to applicants who have some familiarity with economics and who believe their cultural background has interesting insights on resource management that should be valorised. International applicants are particularly welcome.

*Person Specification:*

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***Person Specification:***

The scholar should:

- Have some familiarity with economics and/or management. This can be demonstrated by having attended one or more economics/management/business courses in their first year, and/or by having studied economics or a similar discipline in their A-levels or high school.
- See in their own background cultural aspects that they would like to explore, connecting them and contrasting them with economic ideas.
- Genuinely want to valorise their own cultural background through this research project.
- Be reasonably well-connected in their own community, so that it will be easy to secure interviews and/or participants for the focus groups.
- Be able to do qualitative analysis, or willing to learn how to do it.
- Be willing to do their research in their hometown or in the surrounding area.



# Using Points of Interest Data to Understand Retail Change in Great Britain, 2015 – 2025

## Academic Lead – Dr Andy Newing

### *Project Description: (1 PLACE AVAILABLE)*

This project gives you the opportunity to work with Points of Interest (POI) data capturing all shops and services within town centres, high streets and retail parks in Great Britain. These data span a 10-year period from 2015 - 2025 and allow us to identify the mix of retailers and services within each retail centre.

You will use your data analysis skills to collate and analyse these data, predominantly using Microsoft Excel and GIS. With guidance from the project supervisor, you will explore these data to pull out interesting trends in retail change. We are particularly keen for you to focus on individual brands or retail centres and draw out interesting 'stories' suitable for a general audience, e.g. 'What type of retailers are thriving in coastal resorts such as Whitby and Newquay'?

You'll generate maps, tables, charts and other outputs to summarise these trends and work with the project supervisor to draft short articles suitable for publication to a broad audience on 'Medium', 'LinkedIn' or 'The Conversation'. You will be given support and guidance with the analysis, but you are expected to be confident in working with data in Excel and have some familiarity with GIS (e.g. QGIS).

### *Person Specification:*

The scholar must have experience in working with (spatial) data in Excel and some familiarity with GIS (e.g. QGIS), probably by having taken a relevant module (most notably 'Digital Geographies' from the School of Geography in their first year of study).

# Antidiabetic Effects of Phytochemicals

## Academic Lead – Dr Christine Bosch

### *Project Description: (1 PLACE AVAILABLE)*

Diabetes is an increasing issue in the UK and worldwide and is associated with chronic disease such as obesity and cardiovascular disease as well as aging.

There is a large interest to develop alternative strategies that are effective and support prevention and management of high blood glucose levels and diabetes.

The proposed Laidlaw scholarship activities provide the opportunity to train in relevant experimental methods to investigate the in vitro potential of natural bioactive compounds (polyphenols) to inhibit starch digestion and therefore reduce sugar availability to the body. Apart from different in vitro methods, there is opportunity to get involved in design and delivery of in vivo human postprandial trials to determine efficacy of selected formulations. Current research in the group explores different polyphenol sources and formulations to develop effective dietary strategies and supplements.

### *Person Specification:*

Targeted students are studying Biology, Food Science & Nutrition, Natural Sciences or a similar subject. Existing knowledge in the specific area is of advantage, but not essential. Most important is a keen interest in research, to learn new methods and develop experimental research skills.

# Academic Freedom and Censorship in Biodiversity Conservation

## Academic Lead – Prof George Holmes

### *Project Description: (1 PLACE AVAILABLE)*

Biodiversity loss and conservation have been studied by many disciplines. Whilst not examined systematically, there are many reported incidents of academic censorship and self-censorship, where data collection or publication has been suppressed. This can range from legal action, removal of research permits, and intimidation. It can suppress data on the success or failure of conservation projects, corruption, and human rights issues. Yet this has not been studied systematically or extensively, despite its importance for doing better research, and for principles of academic freedom. This project would undertake a global survey of researchers on biodiversity conservation, to understand the range of incidents of censorship, their geography and their causes.

The role of the student would be to co-create, distribute and publicise the survey. Should time permit, they would also be involved in analysing the initial set of results.

They would be expected to: - Read case studies and consult, to identify potential question agendas - Help co-create the survey, including getting it through the research ethics process - Co-create a distribution strategy, and distribute the survey - Administer the distribution, including additional publicity as required - Analyse the results, as time permits - If time permits, contribute to writing up findings.

### *Person Specification:*

The applicant should: -have an interest in the topic of biodiversity conservation, broadly defined

-be able to work with sensitive and confidential data

-be able to take the initiative and undertake work with light touch supervision

# Eco-Hope for Sustainability Students

## Academic Leads – Dr Jonathan Busch & Dr Rachael Carrie

*Project Description: (1 PLACE AVAILABLE)*

This Scholarship opportunity is part of an “Eco-hope in a Sustainable Curriculum” project that aims to address the emotional impacts of studying the environmental crisis on sustainability students. We know that young people today struggle with high levels of what has been termed Eco-Anxiety, and this is especially prevalent amongst students on our Sustainability courses. Our students also have some great ideas for activities that could help them with this: having Lecturers acknowledge the emotions that our discussions evoke, making space for the discussion of those emotions, and being given the opportunity to engage with real-world solutions.

This Scholarship project will explore interventions that are being used at UoL and in other settings to acknowledge eco-anxiety and help students manage how it impacts their studies and ambitions for the future. The student will have the opportunity to engage with organisations that are exploring and effecting change in this area, including Nifty Sustainability. Following on from this, the Scholar will work with the project team to develop activities and guidance for students and educators. We hope the applicant can then be involved in building an international research collaborations and a community of practice that can share and develop knowledge and ideas.

*Person Specification:*

The Candidate is expected to have:

- A keen interest in engaging with the Climate and Ecological Crisis, including the emotional dimensions of this.
- - Strong team-working and collaboration skills, with a willingness to be self-directed and adaptable.
- - Strong communication skills, speaking and writing for different audiences so they can contribute to writing reports and articles and present the outcomes in research meetings.

# Digital Green Warriors: Insights into UK's Online-Based Litter-Picking Volunteers' Efforts

## Academic Lead – Dr Noleen Chikowore

### *Project Description: (1 PLACE AVAILABLE)*

The project aims to understand the motivational factors and experiences of online-based environmental volunteers participating in UK litter-picking activities.

The scholar will edit the online questionnaire into JISC Online Surveys software. They will distribute it to various online platforms, analyse the data, and present preliminary findings. They will also conduct a mini literature review to inform the project.

This research will contribute to a broader understanding of volunteer motivations and experiences, helping to improve the design and implementation of environmental volunteer programs.

### *Person Specification:*

1. Good analytical and critical thinking skills to synthesise information, analyse data, interpret results, and draw meaningful conclusions.
2. Good academic writing and communication skills to communicate complex ideas clearly and concisely.
3. Strong organisational and time-management skills to meet project tasks and deadlines.
4. Digital literacy to navigate social media and online community platforms on Facebook and willing to learn new digital tools such as JISC Online Surveys and data analysis software.
5. Good research skills in conducting literature reviews and designing and administering surveys in line with research ethics principles.

# Communicating and Reducing Risks From Glacial Lake Outburst Floods (GLOFs)

Academic Lead – Dr Scott Watson

## *Project Description: (1 PLACE AVAILABLE)*

The scholar will contribute to the “Glacial Lake Observatory for Flood Hazards Impacted by Changing Climate (GLO-FHICC)” project, which aims to assess current and future mountain glacier water stores and the associated flood risks across High Mountain Asia. Deglaciation is leading to the formation of thousands of glacial lakes, often located in remote high-mountain environments. Extreme floods from these lakes, known as glacial lake outburst floods (GLOFs), can cause extensive damage and disruption to livelihoods and infrastructure.

The scholar will run state-of-the-art flood hazard models for key case study sites in Nepal that are susceptible to GLOFs. This will allow them to test the sensitivity of the models to the quality of input datasets and modelling choices, in order to optimise their workflows and produce robust flood hazard maps. Additionally, the scholar will have access to the HELIX hub at the University of Leeds to explore innovative technologies for communicating flood risk. The scholar will be trained to use 3D printing or virtual reality systems to develop a research-informed model toolkit for communicating their findings and supporting disaster risk reduction decision-making.

## *Person Specification:*

Applicants with a background in geography, geoscience, environmental science, natural hazards, would be well-suited for this project. Experience with computer programming (e.g., Linux, R, Python, or MATLAB) is desirable but not essential.

# **Incorporating Community Voices into Sustainability Education**

## **Academic Lead – Dr Vasiliki Kioupi, Dr Rosario Michel Villarreal & Dr Charlotte Nussey**

*Project Description: (1 PLACE AVAILABLE)*

Interested in making a real impact in communities? Join us to shape the future of sustainability education! This exciting project invites you to delve into community voices, unlocking their unique perspectives on local sustainability challenges to revolutionise how we learn about and engage with sustainability.

The project will give you the opportunity to engage with photovoice, an innovative visual research methods that puts cameras into the participants' hands to help them document, reflect upon, and communicate issues of concern, while stimulating social change.

As a leading scholar, you will organise in-person and virtual workshops, with our 'Social Justice Jam' partners, Is14trust in Seacroft, UK and Mothong African Heritage in Pretoria, South Africa. You will have the opportunity to gain first-hand experience of community sustainability challenges through the perspectives of their members and think of creative ways in which these can be incorporated into sustainability education.

Join us in this dynamic exploration, part of the 'Sustainable Curriculum', one of principles of the University of Leeds' Climate Plan. You will have the opportunity to engage with the broader team and present your work in various forums. Your contribution matters, seize the chance to impact sustainability education, and be at the forefront of igniting social change!

*Person Specification:*

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***Person Specification:***

We would like the scholar who applies for this project to be passionate about sustainability, social justice and making a difference related to societal impact.

Some knowledge of community engagement strategies or experience working with communities would be desirable as well as ability for public speaking and qualitative data analysis. We would like the applicant to be available to travel to Seacroft for a 1.5-hour workshop in collaboration with We are Seacroft.



# Consumer Response to Artificial Intelligence: The Role of Culture and AI Empathy

Academic Lead – Prof. Aristeidis Theotokis

*Project Description: (2 PLACES AVAILABLE)*

This project explores how cultural values influence consumer responses to AI's "agreeableness"—characteristics like friendliness, empathy, and cooperation.

While AI is being rapidly integrated into businesses worldwide, consumers in different cultures respond to AI in varied ways. We aim to understand these differences by examining responses in collectivist cultures (e.g., China) versus individualist cultures (e.g., UK/US). The scholar will conduct a literature review on AI agreeableness and cultural dimensions, helping to shape the project's focus. They will then design and develop an experiment that presents AI interactions with varying agreeableness levels, working closely with doctoral students and the supervisor. The scholar will assist in collecting and analysing data, identifying trends and insights that reveal how cultural values affect AI perception.

This work provides an opportunity to gain hands-on experience in experimental design, data collection, and analysis within an interdisciplinary team. Findings will inform the design of culturally adapted AI, with implications for global businesses aiming to increase consumer acceptance and trust in AI technologies.

*Person Specification:*

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***Person Specification:***

The candidate should have a background in social sciences or related fields, such as psychology, sociology, marketing, consumer behaviour, or anthropology.

Knowledge in cultural studies, human-computer interaction, or behavioural science would also be valuable. An understanding of quantitative research methods and statistical analysis is essential, as the project involves designing experiments, collecting data, and conducting analyses to evaluate consumer responses across cultural contexts.

Familiarity with AI in consumer contexts and cultural dimensions (e.g., individualism vs. collectivism) is advantageous but not mandatory, as training and guidance will be provided.

# **Building Climate Resilience through Cultural Heritage Governance: A Case Study on Flood Adaptation in the Global South**

## **Academic Lead – Dr Francesca Giliberto**

*Project Description: (2 PLACES AVAILABLE)*

Join an exciting opportunity to contribute to global climate resilience research with the project “Advancing Cultural Heritage Governance for Resilient Climate Adaptation” (AGREE). This project seeks to expand AGREE’s research—currently centred on European case studies—by exploring flood resilience strategies in the Global South. As a Scholar, you will investigate how communities in a Global South region use cultural heritage to adapt to flooding challenges.

Your role will involve conducting a scoping review to identify a case study, gathering data through desk research and interviews with local stakeholders, and analysing heritage-based resilience strategies. You’ll have the opportunity to present your findings at the AGREE knowledge exchange event in Rome, collaborate with renown partners like the UK’s Department for Culture, Media and Sport (DCMS), the British Council, and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), and publish your work in the form of a report and blog.

This role offers a unique experience in interdisciplinary research, enabling you to make a meaningful impact on international and national policy discussions. Ideal candidates are passionate about climate adaptation, cultural heritage, and contributing to global change. Learn more about AGREE at <https://agreeproject.org/>.

*Person Specification:*

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***Person Specification:***

The ideal candidate for this project will be a motivated, self-driven undergraduate with a genuine interest in climate resilience, cultural heritage, and global studies. The following skills and qualities are essential or desirable for a successful applicant:

**Research Skills:** Competency in conducting desk-based research, including literature reviews and data analysis, is essential. Familiarity with qualitative research methods, such as interviews, would be beneficial.

**Communication Skills:** Strong written and verbal communication skills are required for preparing reports, blog posts, and presentations.

**Project Management:** Good organisational skills and the ability to manage time effectively to meet deadlines are essential. Experience in managing small projects or assignments independently is desirable.

**Cross-Cultural Awareness:** Given the project's international scope, an awareness of and sensitivity to different cultures is important. Prior experience engaging in cross-cultural environments would be an asset.

**Availability for Travel:** The candidate should be available for potential travel to Rome for the AGREE knowledge exchange event in November 2025, pending funding and academic schedules.

This project offers a unique opportunity for an undergraduate to develop critical research and leadership skills within a global context. The ideal candidate will be enthusiastic, committed, and prepared to make a meaningful contribution to the AGREE project's goals.

# Does LRG1 Protect Blood Vessel Health and Boost Metabolism in Fat Tissue?

Academic Lead – Dr Amanda MacCannell, Prof Lee Roberts & Dr Paul Meakin

*Project Description: (1 PLACE AVAILABLE)*

Research Project Opportunity: Does LRG1 Protect Blood Vessel Health and Boost Metabolism in Fat Tissue?

This project explores how the protein LRG1 supports communication between fat cells in white adipose tissue (WAT) and blood vessels, with potential effects on fat tissue metabolism and vascular health. Known as an adipokine, LRG1 is a molecule secreted by fat cells that may help regulate energy use and blood vessel function.

The student will gain hands-on experience culturing fat and endothelial cells (blood vessel cells) from mice, comparing cell groups with and without LRG1 genes. Through this work, the student will learn essential cell culture techniques and use RT-qPCR (quantitative PCR) to measure gene changes, assessing how LRG1 influences genes and proteins critical for blood vessel function, mitochondrial energy production, and fat metabolism.

Expected Outcome: This project aims to reveal how LRG1 may enable fat and blood vessel cells to support healthy fat metabolism, especially relevant in obesity. Findings may point to new ways to enhance blood vessel health and metabolic function in fat tissue.

*Person Specification:*

Most students will be a good fit for this project, but they must be comfortable working with mouse tissue samples

# Investigating the Erosion Resistance of Dental Composite Materials After Post-Brushing Mouthwash Exposure

Academic Lead – Dr Flavia Pires Rodrigues

*Project Description: (3 PLACES AVAILABLE)*

Wear resistance of dental composites when exposed to brushing and mouthwashes lies in the gradual breakdown of the material's surface and internal structure. Brushing, particularly with abrasive toothpaste, can create surface scratches, increase roughness, and accelerate mechanical wear, weakening the resin-composite over time. Mouthwashes, especially those with alcohol or acidic ingredients, may exacerbate this wear by softening the resin matrix, which can reduce hardness, increase susceptibility to erosion, and micro-cracking.

This project aims to evaluate the resistance of dental composite formulations to wear after simulated daily post-brushing mouthwash exposure, providing insights into resin-composite durability. Over six weeks, the study will generate data on resin-composite degradation, and resistance levels across formulations. Activities include a literature review, sample preparation, simulated brushing and mouthwash tests, and assessments of surface roughness and microstructure using profilometry, microscopy, and microtomography. This dual exposure to mechanical abrasion from brushing and chemical degradation from mouthwashes can lead to compromised aesthetics, reduced structural integrity, and faster replacement rates for dental composites, ultimately affecting their longevity.

An international collaboration will further enhance the research by facilitating parallel studies with a partner university specializing in dental materials, maximizing the project's impact on resin-composite formulation research.

*Person Specification:*

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***Person Specification:***

The person to perform this research project must be a student from either a Dental, Engineering (preferable Materials Science, Mechanical, or Chemical Engineering), or Chemical course.

**Desirables:** to be a curious person, from any gender, any country, any age, and with interest and availability for travel to a conference to present the work.

# What are Student Nurses' Knowledge and Experiences of Communicating of Risk, Benefit and Uncertainty about Medicines: A Qualitative Interview-Based Study of Student Nurses

**Academic Lead – Dr Rebecca Dickinson**

*Project Description: (1 PLACE AVAILABLE)*

Most people will take medicine at some point in their life. Supporting people with the optimal taking of medicines is a fundamental activity in nursing. Nurses are required to be assessed regarding their proficiency in the safe administration of medicines (NMC, 2018). It is known that when patients understand the rationale for their medicines, they tend to experience better adherence, which can lead to better health outcomes (WHO, 2015)

Communicating about medicines can be complicated. The effectiveness of medicines is measured during clinical trials and many medicines have a complex profile of risk of harm and likelihood of benefit. It is known that patients can underestimate harm and overestimate the benefits of medicines (Hoffman). It is important for nurses to support patients with accurate understanding about their medicines.

It is also known that clinicians can struggle to have accurate understanding of the risks, benefits and uncertainties associated with medicines. Research relating to this has not examined the views of student nurses. This study aims to understand what student nurses' perceptions about risks, benefits and uncertainties associated with medicines. The study will recruit student nurses to semi-structured interviews to explore perceptions about risks, benefits and uncertainties associated with medicines

*Person Specification:*

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***Person Specification:***

An interest in the topic of effective communication about risks, benefits and uncertainty in healthcare

An interest in learning about nursing and the role of the nurse in supporting people with medicines optimisation

Experience of, or understanding about conducting qualitative research in the form of semi-structured interviews

Good time management and planning skills and the ability to meet deadlines

Excellent written and verbal communication skills including presentation skills

Good general IT skills

An ability to work independently and on own initiative

An ability to demonstrate judgement in planning and carrying out activities

Excellent analytical and writing skills

Effective communication and team working skills