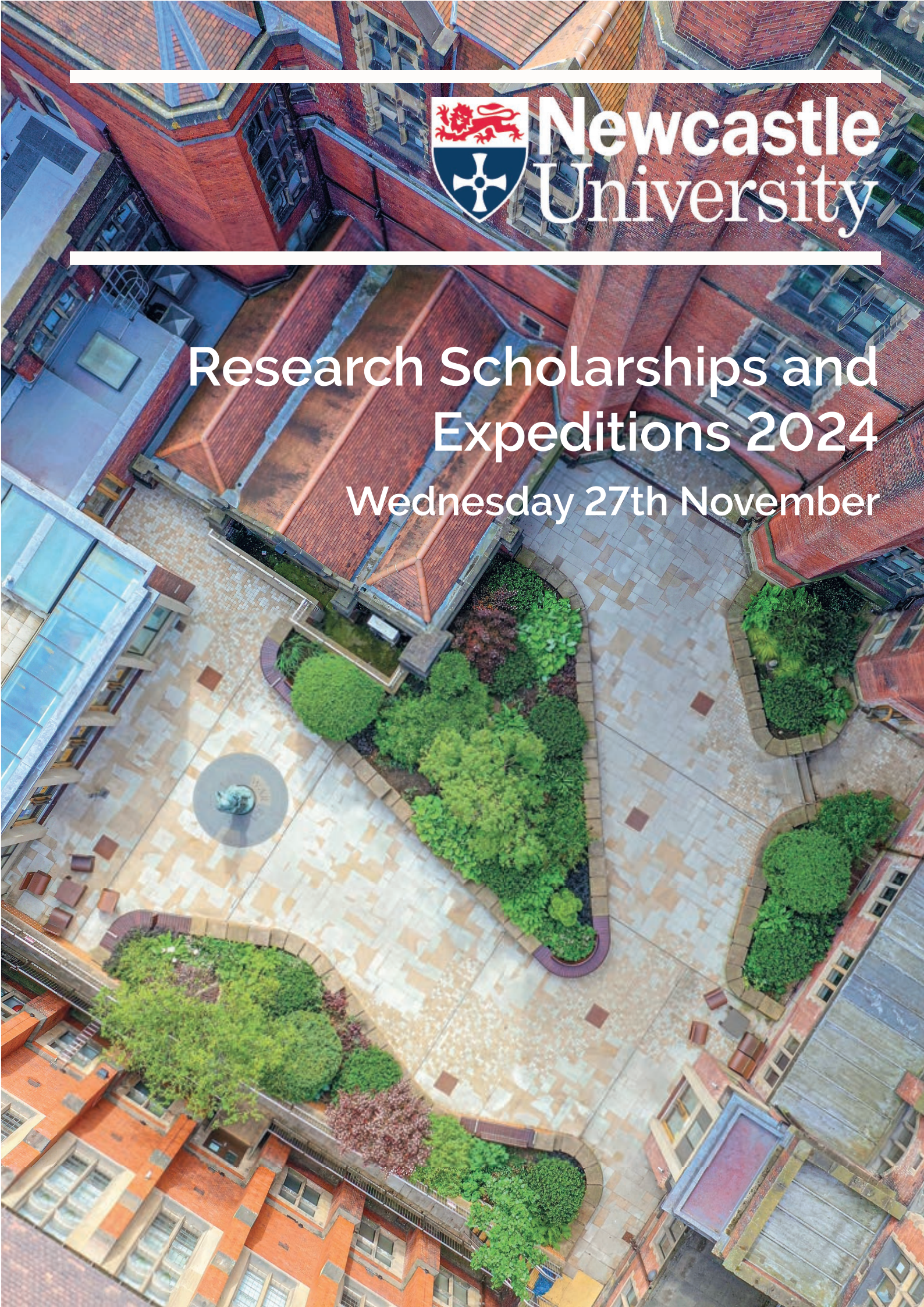


Newcastle University

Research Scholarships and Expeditions 2024

Wednesday 27th November

Introduction to Research Scholarships 2024

Professor Ruth Valentine
Pro-Vice-Chancellor (Education)
Chair of the University Research Scholarships Committee

Students are an integral part of our research culture at Newcastle University. By taking part in any research experience, students develop as independent thinkers, learn new skills and are exposed to the vibrant research culture and environment of the University.

We support undergraduate students through the Research Scholarship scheme to allow them to work alongside researchers on 6-to-8-week summer projects and, through the Expeditions scheme, to help to fund students to undertake field research in other countries. Recent projects have involved researching in archives, working on archaeological material, collecting, analysing, and interpreting social data, working on a laboratory project, or travelling to another part of the world to undertake research in an unfamiliar and challenging environment.

Independent research carried out with the support of more experienced researchers builds confidence and develops analytical skills. For some students the experience of research will stimulate or confirm an interest in postgraduate study and research, for others it will be a way to enhance their skills and experience. The production of a poster at the end of the project helps students to further develop their presentational skills and underline the importance of being able to communicate research findings to a variety of audiences.

This scholarship scheme is a fantastic experience for our students and is a great opportunity for our colleagues to work with our enthusiastic and talented students in a different setting.

Introduction to Expeditions 2024

Dr Emma Pearson
Chair of the University Expeditions Committee

Newcastle University has a long and exciting history of student expeditions dating back to 1948 when a small group of Geography undergraduates took part in a pioneering expedition to Iceland. This initial expedition was guided by Hal Lister, a glaciologist and noted Arctic and Antarctic explorer, who later became a Reader here in the Geography Department. He took part in many expeditions including the British North Greenland (1952-1954) and Commonwealth Trans-Antarctic (1955-1958) Expeditions and was a strong advocate of undergraduates gaining experience of fieldwork through expeditions. His legacy of promoting and supporting student expeditions continues to this day.

Since the first expedition in 1948, subsequent expeditions have been organised and conducted by students undertaking research in more than ninety different countries, and from a wide range of disciplines from each of the three University faculties. Expeditions have been carried out in a diverse range of environments and destinations, with examples including Brazil, Costa Rica, Ethiopia, Fiji, Greenland, Nepal, Peru and Tanzania. Research has been carried out on a wide range of topics including biodiversity, ethnography, territoriality and identity, nursing and medical care, and melting glaciers.

Organising an overseas expedition is a logistically challenging exercise, requiring students to develop research aims and objectives, identify study sites, learn new techniques, obtain field equipment, and liaise with research counterparts and institutions overseas. An additional challenge is that overseas expeditions require substantial funding which the students must raise themselves, including from external professional bodies such as the Royal Geographical Society and commercial sponsorship.

The students who rise to these challenges develop and gain a wide range of valuable skills and team-working and leadership experience. In addition to the hugely rewarding experience that they obtain throughout the whole expedition process, from developing initial ideas and planning through to successful completion and write-up, they always return with new skills, a huge sense of satisfaction and fulfilment, and increased confidence and maturity. I always look forward to hearing about and celebrating their exciting endeavours and achievements when they return.

Research Scholarships and Expeditions 2024

Newcastle University's thriving Research Scholarships and Expeditions programmes go from strength to strength.

Once again this year there has been significant interest in the University's Research Scholarship scheme with 56 projects being funded by the University's Research Scholarship Committee across all three faculties – Humanities and Social Sciences, Medical Sciences and Science, Agriculture and Engineering. While many students were funded by the University, 9 students were successful in obtaining external funding from other organisations, including the Royal Society of Chemistry, Association of Physicians and the National Institute for Health and Care Research. Research Scholarship funding was also made available to support students based at the University's branch campus in Malaysia to complete summer research projects.

Three Expeditions, to Canada, Greenland and Bhutan, were also undertaken by 11 students from the Schools of Geography, Politics and Sociology and Natural and Environmental Sciences. Funding towards these expeditions was awarded by the University's Expeditions Committee, Harry Collinson Travel Scholarship and Sonia Stonehouse Expedition Fund, as well as several external organisations including the Royal Geographical Society, the Gilchrist Educational Trust and The Arctic Club.

The continuing success of the University's Research Scholarships and Expedition schemes demonstrate the strength of the University's reputation both for the quality of the research training provided, and for the creativity of our students and staff in putting forward ideas for interesting and useful research projects to foster personal development, enhance future, career prospects and widen the academic experience of many students.

The projects and expeditions carried out during summer 2024 are described in this brochure and academic posters can be viewed before the presentations.

Reception and Presentations

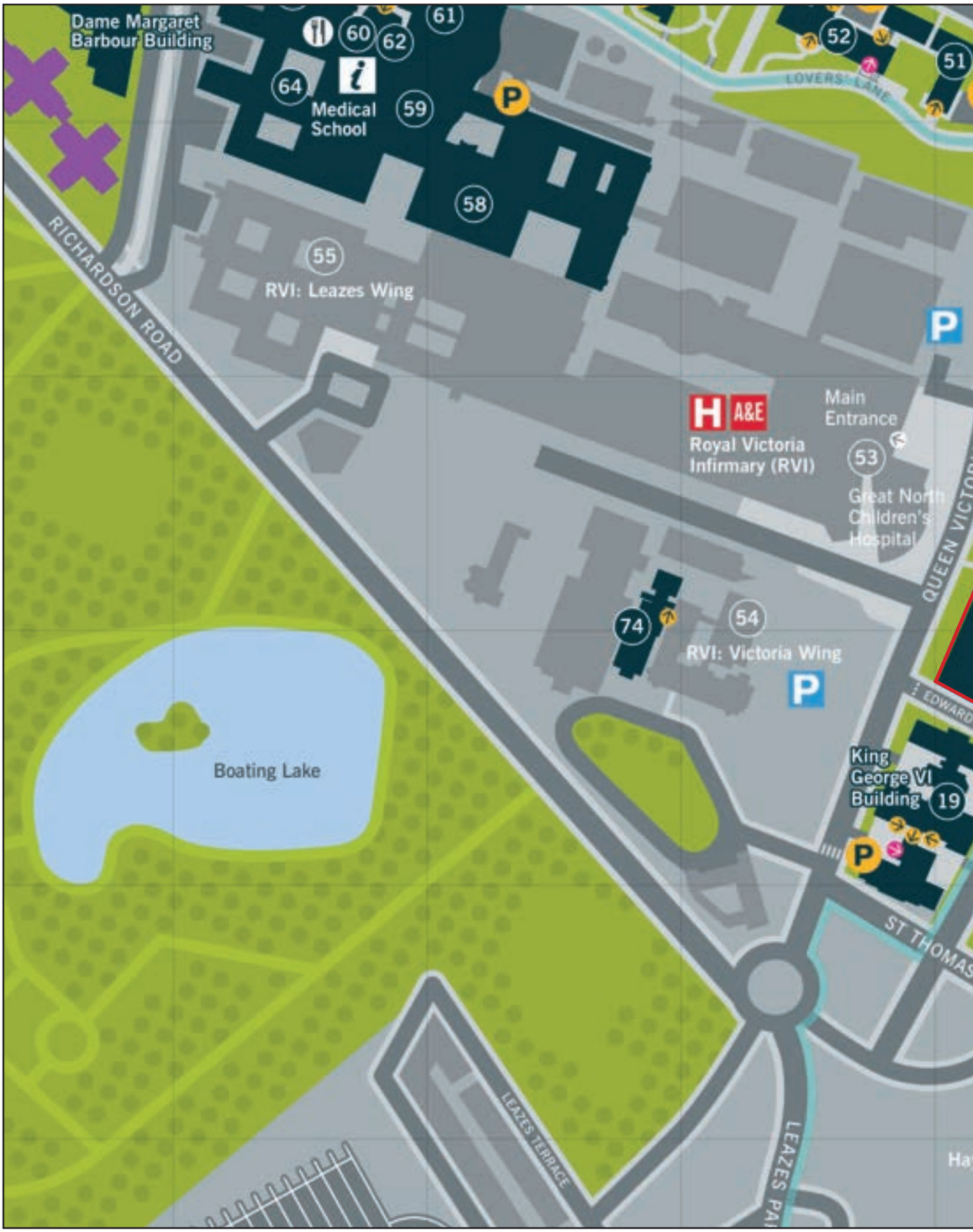
This year's Celebrating Research Scholarships and Expeditions event will take place on Wednesday 27th November 2024.

From 3:30pm a display of posters in the Lindisfarne Room, Hadrian Building, will showcase student research scholarship and expedition achievements and provide an opportunity to speak to the students who have carried out summer research.

From 5:00pm, in the Alec Campbell Lecture Theatre, Bedson Building, selected students will give presentations about their research scholarship projects and expeditions describing their aims, how they conducted their research and the outcomes.

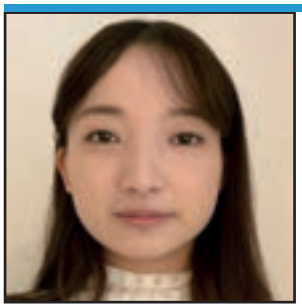
3:30 - 5:00pm	Posters available for public viewing in the Lindisfarne Room, Hadrian Building Refreshments served for students, supervisors and invited guests, Lindisfarne Room, Hadrian Building
5:00 - 5:10pm	Welcome and introductions by Professor Ruth Valentine and Dr Emma Pearson, Alec Campbell Lecture Theatre, BEDB.G.04.LT1 (Entrance 3)
5:10 - 6:30pm	Presentation 1: FMS, Muzuki Ueda, *Investigation of the association between blood pressure medication use during life and dementia pathology in the brain after death* Presentation 2: Greenland Expedition, Joseph Thomas, Joseph McGrattan, Madeleine Graham, Isaac Benfield, Holly Muntus and Catherine Clarke, *Investigating the impacts of climate change on Russell Glacier and its surrounding landscape* Presentation 3: HaSS Faculty, Bek King, *"Let her be burnt to ashes": Witchcraft and Domestic Treason in the Trial and Execution of Mary Lakeland* Presentation 4: British Columbia Expedition, Henry Robinson, Kiera Scanlan, Jack Wakenshaw and Joshua Drake, *A Newcastle University expedition into the heart of British Columbia to explore biodiversity and species distribution* Presentation 5: SAgE Faculty, Mayibongwe Adonis Jamela Sibanda, *Review on the Sustainability of Producing Nanomaterials* Presentation 6: Bhutan Expedition, Niamh Hope, *Reconstructing past glacier extent throughout Lunana*
6:30 - 6:40pm	Announcement of winners and commendations
6:45pm	Event Closes

Research Scholarships and Expeditions 2024




September 2023
Kensington Terrace
Merz Court
Claremont Quadrangle
Percy Quadrangle
Old Library Building
Great North Museum: Hancock
Philip Robinson Library
Carlton Lodge
Jesmond Road
Great North House
Marjorie Robinson Library Rooms
King's Hall
Armstrong Building
Old Quadrangle
Hatton Gallery
Northern Stage
Due for completion early 2023
Student Forum
Union Lawn
King's Gate
Bedson Building
Students' Union
Hadrian Building
Civic Centre
Main pedestrian access to campus
Herschel Annex
Bernicia Halls
Grand Hotel
Herschel Building
INTO Centre
Church of St.Thomas the Martyr
Joseph Cowen Halls
City Centre
City Hall
Haymarket
Haymarket Bus Station
CLAREMONT ROAD
DEVONSHIRE TERRACE
DEVONSHIRE WALK
HADRIAN BRIDGE
BARRAS BRIDGE
JESMOND ROAD WEST
SANDYFORD ROAD
KING'S ROAD
PERCY STREET
ST MARY'S PLACE
VINE LANE
RIDLEY PLACE
JOHN DOBSON STREET
NORTHUMBERLAND RD
COLLEGE STREET
WINDSOR TERRACE
OLD LIBRARY LANE
CLAREMONT WALK
KING'S GATE LANE
ASSEMBLY LANE
BREWERY LANE

Presentations



Muzuki Ueda

MBBS

Investigation of the association between blood pressure medication use during life and dementia pathology in the brain after death

Dementia is a group of diseases that affect memory, thinking, and behaviour. There are currently over 55 million people living with dementia worldwide, but available treatments have limited effectiveness. Recent evidence suggests that Angiotensin Receptor Blockers (ARB), a common medicine for treating high blood pressure, may also prevent dementia.

My project aimed to investigate the effect of ARB use during life on the distribution of dementia-related proteins in patient brains after death. The amount of dementia pathology across the brain was categorised using standardised rating scales. The amount of pathology was also measured directly by looking at two areas of the brain through a microscope. Using both methods, the amount of dementia-related proteins was lower in the ARB group than the control group.

The results suggest that ARBs could be an affordable and readily available medicine to prevent and possibly treat dementia, that benefit patients globally, including in low-income countries.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Dr Paul Donaghy and Dr Daniel Erskine

Joseph Thomas, Joseph McGrattan, Madeleine Graham, Isaac Benfield, Holly Muntus and Catherine Clarke

BSc Hons Geography and BSc Hons Physical Geography

Greenland Expedition: Investigating the impacts of climate change on Russell Glacier and its surrounding landscape

During this expedition, we successfully investigated and produced datasets for six dissertation projects, two on ice and four ice-marginal. Research was focused on Russell Glacier (67° 5'48.03"N, 50°13'4.97"W) an outlet of the Greenland Ice Sheet. The stationary margin of the glacier around Point 660 (67° 9'8.28"N, 50° 2'49.29"W) provided a good analogue for studying anthropogenic climate change within the arctic.

A previously unstudied paleo-lake delta system was mapped using differential GPS. Further analyses of these data will produce a geomorphological map, along with relevant sedimentological information, to better understand the geomorphological history of the lake-delta system. The ice-marginal land system around Point 660 was mapped using differential GPS. Moraine morphologies showed both thrust-block and ablation characteristics. These will be compared with historic digital elevation models and surface grain-size information to produce a development for the land system. Processes of sediment transfer around Point 660 were measured using detailed sedimentological techniques. The included sites of debris upwelling at ice-marginal streams and throughout the moraine system. The impacts of historic jökulhlaups around a periodically draining proglacial lake were investigated using sedimentological techniques. Logs were taken at 15 sites. Aerial photography using a UAV was also undertaken. These will be used to produce a detailed geomorphological map. The role of fine glacial debris upon ablation rates was investigated across 15 ablation poles. Sites were chosen to represent the variability in debris colour around the Point 660 ice, aiming to correlate ice surface colour to significance of melt. Finally, the evolution of meltwater channels was investigated through mapping of streams on the glacier surface. Daily measurements of channel width, depth and water velocity were taken.

Results of these investigations form the basis of undergraduate dissertations and extends previous Newcastle University work in the study area.

Funded by: Newcastle University Expeditions Committee, Royal Geographical Society (with IBG), Gino Watkins Memorial Fund, Sonia Stonehouse Expedition Fund, Gilchrist Educational Trust, Andrew Croft Memorial Fund, The Arctic Club, Confederation of Scandinavian Societies (CoScan)

Project Supervisors: Professor Andrew Russell, Professor Neil Ross and Professor Rachel Carr

Bek King
BA Hons English Literature with Creative Writing

“Let her be burnt to ashes”: Witchcraft and Domestic Treason in the Trial and Execution of Mary Lakeland

Mary Lakeland’s case of witchcraft in the 17th century stands out because she was executed by burning, a method rarely used in England compared to the more common hangings. On September 9th, 1645, Lakeland was burned at the stake for allegedly murdering her husband through witchcraft. She faced nine charges, including multiple murders, the burning and sinking of ships, and consorting with evil spirits. Despite the severity of her case, it is often overlooked due to limited records. This project does not aim to solve the unusual circumstances of her case, but rather collect the factual details of her story. This research is displayed in an online exhibition on Shorthand that will explore her story, revealing details of her life and the context of her accusations, highlighting the injustice faced by this outspoken and pious woman.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Ruth Connolly

Henry Robinson, Kiera Scanlan, Jack Wakenshaw and Joshua Drake
BSc Hons Biology and BSc Hons Zoology

British Columbia Expedition: A Newcastle University expedition into the heart of British Columbia to explore biodiversity and species distribution

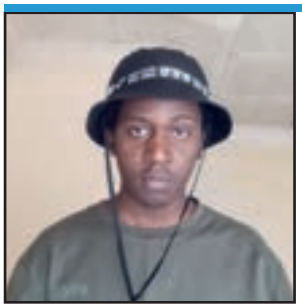
Our expedition to British Columbia, as part of the Expedition Scheme, took us halfway around the world to an off-grid research camp in the depths of the Canadian wilderness. After two long days of travel, we arrived to a cluster of lakefront log cabins that we would call home for the next month. During this time, we had run-ins with grizzly bears; encounters with wolves and eagles; and were fortunate enough to see spectacles like the Northern lights and meteor showers.

Each one of our projects aimed to explore different aspects of the regional ecosystem, stretching from mountains and lakeshores to the very centre of the forest. We worked in collaboration with the John Prince Research Forest (JPRF), an organisation committed to sustainable logging through resource conservation and management. We focused on camera trapping as a core method to study our research questions. One member observed the correlation between mammal diversity and logging, while another investigated carnivore behaviour in lakeside habitats. Other members studied otter behaviour and the effectiveness of lures in camera trapping.

Throughout our stay, we assisted the JPRF team with a wide variety of tasks, including hummingbird tagging, bear hair snagging for DNA study, and an international forest management scheme. Our projects were primarily successful, teaching us valuable fieldwork skills and the ability to adapt with the ever-changing environment of remote research.

Funded by: Newcastle University Expeditions Committee and Gilchrist Educational Trust

Project Supervisors: Professor Aileen Mill, Professor Darren Evans and Dr Mark Booth



Mayibongwe Adonis Jamela Sibanda
BEng Hons Chemical Engineering

Review on the Sustainability of Producing Nanomaterials

The research explores the sustainability challenges of nanomaterial production, focusing on the economic, environmental, and social aspects. Two production methods, top-down and bottom-up, are commonly used. The top-down method is cost-effective but has a high environmental footprint due to energy consumption, waste generation, and potential pollution from raw material extraction. In contrast, the bottom-up method offers better control over particle size and reduced waste, yet still relies on hazardous chemicals and energy-intensive.

Key challenges include environmental impact of hazardous waste, high energy demands, and insufficient-end-of-life disposal strategies. Social concerns, especially related to potential human health risks from nanoparticle exposure, were highlighted. The research stresses the need for sustainable production techniques, improved environmental impact assessments, and robust regulations. A balanced approach is essential to mitigate potential risks while advancing nanotechnology's benefits across various sectors.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Maria Vicevic

Niamh Hope
MRes Environmental Geoscience

Bhutan Expedition: Reconstructing past glacier extent throughout Lunana

Himalayan glaciers are rapidly retreating in response to climate warming, with major implications on downstream communities. In Bhutan there is a national priority to understand how glaciers respond to climate change with the increased risk of Glacial Lake Outburst Floods (GLOFs). Data collected during my expedition to Lunana helps address a major gap in understanding of the glacial history. Many of the glacial lakes throughout Lunana have moraine dams, therefore researching moraine ages and composition is important for understanding GLOF risk and exploring contemporary ice loss. The expedition was predominantly successful; however, data collection was hindered by the inaccessibility of some moraines close to the lakes. Despite some challenges, an extensive relative age dataset was gathered through conducting Schmidt hammering on approximately 250 boulders on moraines across the forefields surrounding the glacial lakes of Bechung, Raphstreng, and Thorthormi glaciers. Alongside, conducting ground penetrating radar to determine moraine composition.

Funded by: Newcastle University Expeditions Committee, Harry Collinson Travel Scholarship

Project Supervisor: Professor Rachel Carr

Adam O'Hare

MChem with Hons in Chemistry

Machine Learning Interatomic Potentials for Excited-state Potential Energy Surfaces

Most chemical processes happen in the ground state, the lowest energy level of a system. However, some critically important reactions can only take place when light interacts with molecules and excites their electrons to higher energy states. These excited state reactions can be partially described by quantum dynamics (QD), and are critical to processes like photosynthesis, solar energy conversion, and vision. Simulating these processes is complex and time-consuming. Current methods like Ab Initio Molecular Dynamics (AIMD) are accurate but very computationally expensive.

My research uses machine learning interatomic potentials, a type of artificial intelligence where models learn patterns like energies and forces from data labelled with quantum chemistry calculations, to predict the behaviour of these excited states at new molecular geometries. This approach can significantly speed up simulations, reducing the time and cost needed for accurate predictions.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Ioan-Bogdan Magdau

Adeleh Mohammadkhan

Master of Pharmacy with Honours

The Use of Medications to Modify the Impact of Poor Air Quality on Human Health: A Systematic Review

Fine particulate matter, especially $PM_{2.5}$, PM_{10}, and nitrogen dioxide (NO_2), poses significant health risks, contributing to various medical conditions and increased mortality. Ambient air pollutants can penetrate deep into the lungs and contribute to respiratory, cardiovascular, and endocrine diseases. Currently, no medication is specifically approved to address these health impacts. This systematic review, registered with PROSPERO (CRD42023476448), investigated potential treatments to prevent or reduce the impact of air pollution on health by searching Medline, Embase, PsycINFO, and Scopus using specific terms relating to 'pollutant', 'medication', and 'prevention/treatment'. Thirteen studies were included and examined the effects of statins, NSAIDs, anti-diabetic medications, beta-blockers, systemic glucocorticoids, and inhalers. Statins and oral anti-diabetic medications significantly lowered inflammation markers, beta-blockers improved heart rate variability, and inhaled corticosteroids alleviated asthma symptoms. These results suggest that beta-blockers, anti-inflammatory drugs, and diabetes treatments may help reduce the health risks of air pollution. Further research is needed to assess their full benefits and risks.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Sarah Slight

Akrivi Chaimala

BA Hons Politics and International Relations

Historical Legacies and the Politics of Memory: Examining the Oglethorpe Pledge

Calling into question what the collective 'we' chooses to remember and what to forget, recent activism on university campuses has resisted the memorialisation of contentious historical figures. Beyond starting a productive dialogue on the far-reaching implications of the selective construction of a necessarily multi-directional past, this project aims to establish a guidance model for universities to follow in responsibly handling complex legacy donations. After all, the legacies that a university endorses reflect said university's values. As such, the theoretical framework of the Politics of Memory is applied to the case-study examination and proposed interpretation of the recently pledged James Edward Oglethorpe (1696-1785) legacy to Newcastle University. Emerging from this research is the conclusion that legacy donations ought to be understood as offering to universities the valuable opportunity to effectively materialise their vision for the future in a way that dynamically reaffirms their core values in the present.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Nicola Mulkeen

Alexander Eddy

BSc Hons Mathematics

Fusion Rules of Khovanov Algebras

One of the fundamental algebraic structures is called a group. A group captures the notion of symmetries of an object thus the theory of groups is known by the study of symmetry.

In this project we were interested in groups that model continuous symmetries. These groups are usually studied via their actions on vector spaces. Given two such actions, one can form their tensor product and try to decompose the new action on the tensor product into elementary building blocks.

The aim of this project was to understand the rules that govern how we decompose these tensor products over special Lie groups namely the general linear supergroup and to be able to find improvements on the known character formulas.

Namely the character formula was rewritten in the language of rooted forest combinatorics, we also conjectured that the character formula is invariant under translation of the sectors of the associated diagram.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Thorsten Heidersdorf

Alicia Rose Mobbs

BSc Hons Theoretical Physics

Enhancing The Performance Of Quantum Thermal Devices At Small Scales

Thermodynamics has sparked fundamental questions and driven technological advancements, including the development of heat engines. Heat engines, like steam engines or heat pumps, convert heat into mechanical work, powering various technologies. As science progresses towards quantum computing, there's a growing need for heat engines to operate at smaller scales. However, at these scales, complications arise when incorporating quantum effects and fluctuations on the characterisation of the engine efficiency.

This project was aimed at the intersection between thermodynamics and quantum physics, leveraging quantum effects like symmetry to enhance engine performance. Using single and two particle harmonic oscillators as the working mediums for the heat engine, analysis was done to show the performance of these at both high and low temperatures. The two particle case focused on the use of either fermions or bosons to enhance the engine performance, especially when considering the sudden switch of frequencies in the engine.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Obinna Abah

Charlie Goodwin

BSc Hons Psychology with Professional Placement

Refining measures to understand how neurodivergent people adjust their communication in different environments

Research suggests that neurodivergent individuals often communicate differently from neurotypical people, this may contribute to 'masking', where neurodivergent individuals conceal aspects of their identity to appear neurotypical. Masking is associated with poorer mental health and higher university drop-out rates compared to their neurotypical peers. This study aimed to refine the Similarities and Differences of Communication Styles (SDCS) and Contextual Use of Communication Style (CUCS) questionnaires using cognitive interviewing techniques. Semi-structured interviews were conducted with nine participants across two iterations. Although the questionnaires were generally well understood, some issues regarding clarity and response categories were identified. After ten revisions, participants found the questionnaires clear and easy to complete. The improved SDCS and CUCS show better content validity and are suitable for use with neurodivergent individuals. These tools have potential applications in research, education, workplaces, and healthcare. However, more research is needed to validate them across different populations.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Mark Freeston

Charlotte Love

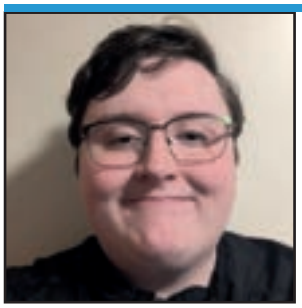
BSc Hons Psychology with Professional Placement

"It's Just You and the Eating Disorder" The Prevalence and Experiences of Transitioning to University with Disordered Eating

This study aimed to explore the prevalence, predictors, and experiences of disordered eating within UK students transitioning to university. Evidence suggests that periods of transition are a window of particular risk for disordered eating. Using the Nurture-U data set, this study found that 38.7% of Newcastle University students are at risk of disordered eating and that depression was a predictor of disordered eating. Qualitatively, this study interviewed 8 students with a variety of disordered eating presentations. Four key themes were identified – fending for yourself, one size does not fit all, fighting my own battle, and validation & understanding. The themes identified aspects unique to university life which perpetuate disordered eating, the difficulties arising from not fufilling the diagnostic box, the isolation caused by disordered eating, and the importance of validation and understanding of professionals. To the researchers knowledge, this is the only UK-based study exploring disordered eating in university students.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Dr Ellen Marshall (with support from Dr Lucy Robinson and external consultant Dr Elizabeth Evans)



Christian Sean Howard

BA Hons Politics

The future of music policy? An Icelandic case study of Music Cities and its viability for implementation in the UK

In this project, an analysis of policy was done with Reykjavik in Iceland as the example of a country enacting policies that direct Reykjavik towards developing a self-sustaining musical ecosystem, following ideas in the Music Cities Manual. I analysed the available information on policy impact through public sentiments, policy analysis and interviews with locals involved in music. Throughout this, I found an urge for better protections for venues that have been threatened by land value and rent increases - as well as calls for widening music education and making it more accessible through subsidies/grants and social programs. The UK faces similar issues, with music education and its funding declining gradually, with many venues similarly threatened. The aim of this research was to shed light into how policies adopting Music City ideas helped Iceland establish a groundwork for a functioning domestic musical ecosystem – with hopes that if these policies continue to help alleviate the known issues, similar ideas could be adopted within the UK.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Matt Davies

Ciara Mason

MSci Pharmacology

Exploring Central Pain Mechanisms in Toothache

Treatments for toothache (pulpitis) are commonly ineffective leaving patients in continuing pain. Exploring the exact cause of toothache is vital to finding better treatment options. Toothache could be reconceptualised as a 'nerve injury' rather than an infective or inflammatory condition. This experiment investigated c-Fos expression, a neuronal activation marker, in the trigeminal tract of 15 rat brain stems using immunohistochemistry. The rats were grouped into sham (n=6) and pulpitis (n=6) and measured at time points 2 hours or 48 hours alongside a positive control group (n=3). At 2 hours, pulpitis rats showed c-Fos expression which indicated the toothache had activated the neurons. At 48 hours, pulpitis rats also expressed c-Fos which indicated the toothache still activated the neurons. This suggested that toothache is caused by neuronal damage rather than inflammation alone. Therefore a more suitable treatment for toothache could be found.

Funded by: Biotechnology and Biological Sciences Research Council (BBSRC)

Project Supervisors: Mr David Edwards and Dr Ilona Obara

Corey Jackson

MChem with Hons in Chemistry

Atom Economical Synthesis of Fluorinated Compounds via C-F Insertion

Fluorine and fluorinated molecules are an essential part in modern healthcare and crop protection, with around 20% of pharmaceutical compounds containing fluorine. With only 6 natural products with a C-F bond, it becomes imperative to be able to form these bonds, in nature's place. Working with F-bond forming reagents can be dangerous and have long-lasting environmental effects, so efficient and safe methods to synthesise C-F bonds are a priority. This project aimed to develop a previously studied one-pot C-F insertion reaction directly using allylic alcohols. There are groups around the globe working to find better ways to make these compounds and bypass the use of HF, hydrofluoric acid, in synthesis. In this work, DAST, diethylaminosulfur trifluoride, is employed to prepare allylic fluorides which are then converted into more complex fluorinated products through insertion.

Funded by: The Royal Society of Chemistry (RSC)

Project Supervisor: Dr Matthew N Hopkinson

Eleanor Cain

Master of Pharmacy with Honours

Influences affecting the adoption of personalised medicines in secondary care

Personalised medicines are drugs that are prescribed based on the patient's genetic profile. They increase the likelihood of prescribed medications being effective, with fewer side effects and toxicity. They have potential to benefit all areas of medicine, yet are mostly used in cancer care, while uptake lags in other clinical areas. This literature review aims to explore the barriers and facilitators to adopting personalised medicines in hospitals. We searched 2 databases (Embase and Medline) and identified 2086 articles. After removing duplicates, and screening titles, abstracts, and full texts, 21 articles were included in the review. The research revealed that barriers existed for both healthcare professionals and the public, such as education gaps, a lack of clinical guidelines and lack of data to inform use of personalised medicines in minority ethnic groups. Facilitators included training and initiatives to grow gene banks to advance research.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Clare Tolley

Ellie McTeer

BSc Hons Philosophy

A Foucauldian Critical Analysis of Reproductive Technology under Contemporary Capitalism

This project entails an exploration and application of Foucault's concept of Bio-power and its relationship with Reproductive Technologies under contemporary Capitalism. Bio-power focuses on the control and maintenance of populations. While researching the history of Reproductive Technologies, there was an indication that birth control as an example, has been focused, and the responsibility of taking it, has lay heavily on female bodies. There is an ambiguity in the impact of this, in that it offers female bodies the freedom of choice in deciding if, and when, they want children; women can choose to work, rather than be mothers. This choice comes with the responsibility and onus of "freedom"; that responsibility is unequal regarding gendered experiences of reproductive technologies and the medical world. Fraser's Cannibal Capitalism explored Capitalism and social reproductive theory. In summary, the maintenance of populations has been replaced perhaps with the maintenance of Capital.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Adam Potts

Elliott Aspery

MBBS

Lithium Dosing Optimisation (LiDO)

Lithium has been used to treat bipolar disorder for 70+ years and remains an effective treatment for stabilising mood. Lithium can be a difficult to prescribe because it has a narrow therapeutic window, meaning small increases in dose can causes toxicity. Therefore, careful monitoring of blood lithium levels is needed and it can take months to identify the optimal dose. Various methods have been derived for predicting this, but none are in use.

We attempted to evaluate the effectiveness of 4 existing dosage prediction methods by comparing them to a simple one-compartment model. We then derived key pharmacokinetic information from existing literature, such as the absorption rate constant (Ka) - a measure of how long it takes a dose to be absorbed, bioavailability (F) – how much of an ingested drug is absorbed and volume of distribution (Vd) – a measure of how extensively a drug distributes.

Funded by: British Association of Psychopharmacology

Project Supervisors: Dr Victoria Wing, Dr Oisín Kavanagh and Dr David Cousins

Eman Khurram

MBBS (NUMED Malaysia)

The effects of Sorafenib and Lenvatinib on precision cut tumor slices (PCTS) from mice

Liver cancer is a global healthcare crisis as the 8th most common cause of cancer death in the UK. Hepatocellular carcinoma is the most common form of liver cancer and accounts for around 90 percent of all cases. This poster aims to investigate the effects of tyrosine kinase inhibitors Sorafenib and Lenvatinib on the metabolic profile and tumor microenvironment in precision cut tumor slices (PCTS). These slices were harvested from mice and treated with different concentrations of the medications for four days.

Sorafenib and Lenvatinib are the first-line oral therapies for advanced HCC. These medications reduce cell division and the development of blood vessels in the tumor thus impairing tumor growth and survival. The cellular metabolic activity of the tumor slices was determined using a luciferase assay. Additional analyses include staining and thresholding of experimental slides to examine changes in the tumor microenvironment.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Mr Jack Leslie and Professor Derek A Mann

Emily Flett

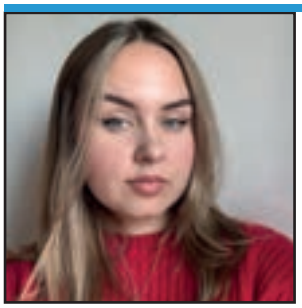
Joint Honours Psychology and Mathematics with Professional Placement

Investigating The Effects of Chronic Pesticide Exposure on Foraging Success in Bumblebees

Bumblebees have consistently demonstrated their ability to learn and recall colours based on their associated reward values in lab conditions. But how does this compare to complex environments in the wild? Our experiment tested whether bees would still favour high-rewarding targets when they were more difficult to spot due to being the same colour as the background of the arena, and how motivation affected this. We trained two groups of bees (high and low reward) to forage from red targets (50% or 30% sucrose solution; based on reward group) and green targets (20% sucrose solution). Then, we evenly distributed 12 of each colour flower (now containing only distilled water to remove scent/viscosity cues) across a red/green split background and measured the proportion of each target type chosen. We used this data to determine whether bumblebees are more able to distinguish high-rewarding camouflaged targets than low-rewarding ones.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Théo Robert



Emily Shord

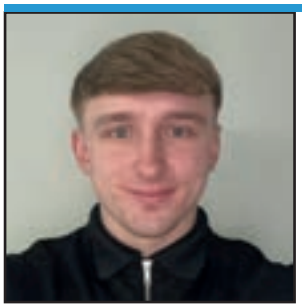
BSc Hons Psychology

The Rise of E-Cigarettes in Academia: The Role of Stress and Socioeconomic Backgrounds on the Increase of Vaping in University Students

Use of e-cigarettes increases 50% annually among children and adolescents within the UK, and vaping related lung injuries have caused several deaths in younger populations. Existing literature focuses on health-related consequences of e-cigarette use, although little research explores the motives behind vaping in adolescents with no prior history of smoking. We developed a scale for measuring e-cigarette motivations (E-CMQ) by modifying questionnaires on alcohol and smoking motivations. An exploratory factor analysis indicated 6 motives for e-cigarette use: coping, conformity, enhancement, automatism, social, and handling. These motivations varied based on participant's nicotine concentration, device preference, frequency of vaping, and reasons for first using e-cigarettes. Importantly, results inform our understanding as to why adolescents may use e-cigarettes without prior tobacco use. For instance, conformity motives might be driven by social media, which often depict vaping positively and acceptable, creating norms which encourage adolescents to use e-cigarettes despite no previous history of smoking.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Zachary Petzel



Ethan Young

MSci Biomedical Sciences

Investigating the role of MK2 in androgen receptor signalling

The aim of this project was to determine whether MK2 kinase activity plays a role in RIPK1 mediated HSP27 activation and subsequent translocation of the androgen receptor into the nucleus of prostate cancer cells where it promotes oncogenesis. The project started with treating LNCaP cells with MK2 inhibitor. Using R1881 as a synthetic androgen, protein samples were collected over a short timecourse. These samples were run out through western blotting to measure the levels of HSP27, p-HSP27, AR and RIPK1. This experiment was repeated 3 times. The second experiment completed was to determine whether MK2 could interact with RIPK1 and AR under steroid depleted conditions. A cell lysate was collected from steroid depleted LNCaP cells, which was tested via immunoprecipitation analysis using antibodies targeting AR, RIPK1 and MK2 before the western blot was carried out to determine any interaction between these proteins. This experiment was also repeated 3 times.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Kelly Coffey

Fatimah Zahra Olukade

MBBS (NUMED Malaysia)

Can where you live affect your pregnancy?

Maternal adiposity is the amount and location of body fat in pregnancy. Health inequalities (e.g. deprivation) are associated with maternal adiposity measured by body mass index (BMI). However, alternative measures of adiposity, including waist circumference and waist-to-height ratio, may be more accurate predictors of adiposity-related risks.

This study explored associations between maternal adiposity and age, parity, smoking, alcohol, ethnicity, and deprivation. Associations were compared with BMI. Women with higher parity and greater deprivation exhibited increased adiposity. Smoking and ethnicity were associated with some adiposity measures (waist circumference, waist-to-hip-ratio), but not with BMI. No significant associations were found between maternal age or alcohol consumption and adiposity.

These findings suggest that while certain patterns of health inequalities are consistent between BMI and other adiposity measures, some are specific to adiposity measures indicating central body fat. Future research may examine the mechanisms behind these associations, to direct improvements in care for women at increased adiposity-related risk.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Nicola Heslehurst

Fayrouz Maher Kamel Elshenawy

MBBS (NUMED Malaysia)

Fusobacterium nucleatum

The research project concentrated on Fusobacterium nucleatum, an oral bacterium connected to both oral and systemic diseases and focused on its role in carcinomas. Over the research period, I produced a fluorescently tagged strain of F. nucleatum through the use of plasmid transformation, which enabled a highly detailed investigation of its interaction with oral epithelial cells.

I was trained in various microbiological methods, including the cultivation and maintenance of both F. nucleatum and TR146 buccal mucosa cells. Cocultivation experiments to study the invasive capabilities of the bacterium were done using fluorescence microscopy for visualization. Assaying the effects of F. nucleatum on viability, proliferation, and immune responses of host cells was performed via MTT, LDH, and qPCR.

These results would help provide valuable information on the pathogenic mechanisms developed by F. nucleatum and its possible role in carcinogenesis as the research is still ongoing. Further insight was obtained into host-pathogen interactions, providing a basis for future studies into oral health and the development of cancer.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Chien-Yi Chang

James Alexander Stephenson

BSc Hons Biochemistry

Investigating copper transfer from a bacterial storage protein to a target enzyme

Copper is a metal essential for many organisms but is toxic when mishandled. Until recently, it was assumed that to avoid this toxicity bacteria did not use copper within their cells. However, a family of intracellular copper storage proteins (Csps) has been found in bacteria suggesting this hypothesis is incorrect. Professor Dennison's lab have recently shown that Csp3 (*Bs*Csp3) transfers copper to a key enzyme (*Bs*CotA) in the bacterium *Bacillus subtilis*. In this project, we studied the influence of changing the amino acid residue (mutagenesis) in a key location of *Bs*Csp3 to investigate its involvement in copper transfer to *Bs*CotA. This was achieved by first purifying the proteins of interest. Copper transfer from the non-mutated and mutated *Bs*Csp3s to *Bs*CotA was then measured over time. The decreased rate for the mutated *Bs*Csp3 suggests its ability to transfer copper to *Bs*CotA is impaired and the residue targeted is key for functionality.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Christopher Dennison

Jasmin Novenstern

MSci Biomedical Sciences with Professional Placement Year

Investigating the role of the CD97 cell surface receptor in efferocytosis

Efferocytosis is the process by which certain immune cells engulf and clear away dead cells in the body. It is vital for maintaining a healthy, balanced immune system. Deficiencies in efferocytosis have been linked to numerous diseases, contributing to impaired tissue repair, chronic inflammation, and even cancer progression. Recently, a new efferocytosis-associated protein has been identified, the cell surface receptor CD97. In mice, this receptor has been found to significantly increase in abundance in macrophages, a type of immune cell, following efferocytosis. This project will examine how the absence of CD97 on the cell surface affects efferocytosis in human macrophages, using 'normal' macrophages, that contain CD97, as a direct comparison. We will also evaluate their ability to engulf particles, and analyse any differences in protein production following efferocytosis. The aim of this project is to evaluate the role of CD97 in efferocytosis and examine the extent of its involvement.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Professor Matthias Trost and Dr Ben Raymond

Jasmine Kenworthy

MBiol Biology

Generating New Resources and Pilot Data for Novel Strategies to Increase Future Food Security

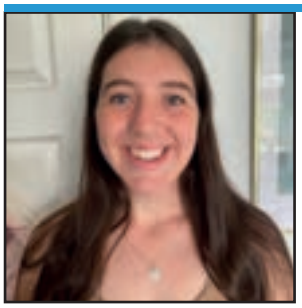
In the light of ever-increasing environmental pressures like drought and disease, I worked on three projects investigating key plant physiology aspects, adding to research aiming to improve agricultural practises.

Project 1 involved identifying 21 Hygromycin-resistant *Arabidopsis thaliana* lines, 5 which were confirmed with PCR screening, to investigate the mechanism responsible for changes in intrinsic Water Use Efficiency (iWUE) in plants expressing the Cyanobacterial bifunctional Enzyme FBPaseSBPase and Red Algal Protein Cytc6 (López-Calcagno, et al., 2020). Project 2 involved performing RNA extractions and cDNA synthesis on 26 tomato samples for future qPCR analysis of small molecular modulators' effect on tomato's response to Botrytis Infection. Project 3 aimed to access photosynthetic behaviour in Cytb561 transformants and T-DNA mutants through Chlorophyl fluorescence imaging.

Thereby, contributing to research developing more sustainable, productive farming practises for more environmentally resilient crops, whilst reducing water and herbicide use. Thus, contributing to a healthier, more food-secure future globally.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Patricia Lopez-Calcagno



Jenny Firth

Master of Speech and Language Sciences

Speech Sound Disorders in children with Hearing Impairments: A Scoping Review

This scoping review collated evidence from research across different hearing loss in childhood and established patterns of speech errors in this diverse group of children. Speech sound disorder (SSD) is an umbrella term for any difficulty with production or use of sounds of speech in a child's native language(s). Although it might seem obvious that a child with limited access to the sounds of their native language would have difficulties producing them, children with hearing impairments often have no difficulties with speech sounds, and for those who do have difficulties, the nature of those difficulties is not well understood. The review found that although many studies described the sounds these children did have, many did not detail the phonological processes, which are patterns of sound errors. However, of those that described phonological processes, the most common were stopping (e.g. 's' -> 'd'), final consonant deletion and gliding (r -> w).

Funded by: National Institute for Health and Care Research

Project Supervisors: Dr Vic Knowland and Dr Stephanie Van Eeden

Jess Brown

BSc Hons Psychology

Exploring hierarchical structures of cognitive impairment in ADHD using network analysis

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder associated with a range of adverse outcomes including academic and occupational underachievement. ADHD is primarily associated with impairments in attention, however, people with ADHD also show wider impairments in processing speed, executive function, and memory. In healthy individuals, these cognitive functions are relatively independent, but in disorders such as ADHD, there may be core cognitive deficits which affect wider functioning, forming a hierarchy of cognitive impairment. This has implications for cognitive interventions to treat memory impairments in ADHD. Some research suggests that deficits in processing speed or attention may explain poor memory in ADHD, but few studies specifically investigate this idea. We used network, mediation, and hierarchical regression analysis to investigate relationships between cognitive functions in ADHD using a large public dataset. Our results found that vigilance, inhibition, and processing speed together can explain the working memory impairment associated with ADHD.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Bethany Little

Jing-Yi Tham

MBBS (NUMED Malaysia)

The impact of colour vision deficiencies on everyday task performance

Colour vision is achieved by the presence of three types of photoreceptors, known as cones, in the retina. Each cone type is sensitive to a different spectrum of light wavelengths, and the combination of signals tells us the colour we see. Colour vision deficiency (CVD) is a condition where there is either an anomaly or absence of at least one cone types. This results in difficulty differentiating certain colours and impact daily activities. In this study, we aim to develop and validate a computerised test to measure the impact of CVD on everyday task performance, e.g., object searching. The test consists of 12 images, participants are shown a prompt for each image and they select the target which fits the prompt. The reaction time and correct response rate are compared between people with CVD and normal colour vision, to determine the extent to which CVD affects daily tasks.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Anya Hurlbert

Joe Burman

BSc Hons Biomedical Sciences

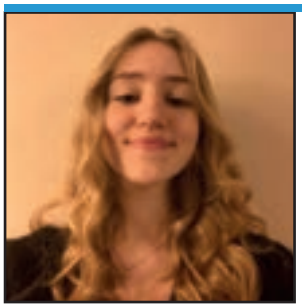
Screening novel activators of mitophagy in human cell and organotypic models

Collagen is the most abundant protein in the human body, being found in skin, bone and connective tissue. Type I collagen specifically, produced by human dermal fibroblasts (HDFs), makes up 90% of the protein in human skin. Collagen maintains the elasticity and integrity of the skin and acts as a scaffold for HDFs to attach to and produce more collagen. As we age, collagen is slowly broken down by enzymes (MMPs) and external damage whilst collagen production also slows. Older and damaged HDFs produce lower quality collagen with fewer crosslinks resulting in collagen with improper structure. These processes result in sustained collagen degradation leading to the thin and fragile skin seen in the elderly.

It's essential that any treatment which stimulates collagen production, also produces "good quality" collagen which undergoes the necessary post translational modifications to ensure proper folding and stability. In our research, we took HDFs, extracted from amputated skin samples, and treated them with various compounds at a range of concentrations to observe their effect on collagen synthesis. A collagen quantity and damage assay was used to mark "good quality" collagen under a microscope. Our results showed that both Ascorbic acid and Glycinamide increased collagen synthesis without sacrificing quality in vitro across ages.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Viktor Korolchuk



Katie Thornton

MSci Biomedcial Genetics

Investigating the contribution of DNA looping in proto-oncogene expression in blood malignancies

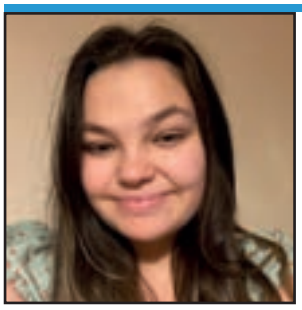
This research was focussed on investigating a potential treatment target for certain types of blood cancer. Our genetic code is like a recipe book, we need instructions and ingredients to produce the cells within our body. The ingredients are genes, and in healthy cells, enhancers provide instructions on which genes are to be switched on and when.

In patients with some types of blood cancer, enhancers relocate, switching on the wrong gene. Recent work identified that the process of switching on the wrong gene can provide a possible treatment target.

This project aimed to disrupt this process using CRISPR-Cas9 technology. In the project, we designed and validated guides that successfully target the gene CCND1 within cancer cells, in order to interrupt its interaction with a nearby enhancer. Further work will use these guides in the hope that we can switch the wrong gene off and potentially kill the cancer cells.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Lisa Russell



Kezia Welsh

Master of Speech and Language Sciences

Exploring a link between language and sleep in children with cleft lip and/or palate: A PPI study

Children with cleft lip and/or palate (CL/P) can have speech and language difficulties and may also experience difficulties with sleep. Previous studies have shown poor sleep could impact language development; to further explore this, a patient and public involvement project (PPI) was carried out. A PPI investigates whether the proposed research is reflective of issues that affect a specific population. For this study, that is children with CL/P and their parents. This PPI collected qualitative data from five 1-1 semi-structured interviews with parents of children with CL/P, regarding their opinion and experience of their child's sleep. Four out of five parents reported that their child had difficulties sleeping, experiencing challenges such as falling asleep, napping and nighttime activity. Parents also discussed the impact sleep difficulties can have on their child such as changes in behaviour and tiredness. All parents thought this research was worthwhile and further research is imperative.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Dr Stephanie van Eeden and Dr Vic Knowland

Koh Zhi Wei

MBBS (NUMED Malaysia)

Identifying Protein Aggregation in Dementia With Lewy Bodies

Dementia with Lewy bodies (DLB) is a common form of memory loss in older people, second only to Alzheimer's. DLB is thought to be caused by the build-up of faulty proteins killing nerve cells. One specific clump forming protein called alpha-synuclein is thought to cause DLB. However, it might be that the connections between nerve cells, the synapses, are filled by clumps of alpha-synuclein. These clumps in synapses might stop signals passing from one nerve cell to another, causing the symptoms of DLB.

To see if synapses are blocked, this project will use a special test that detects only the clumped version of alpha-synuclein. Synapse samples from DLB patients will be tested using the test. If clumped alpha-synuclein is detected, this will tell us that symptoms in DLB could be because the synapses become damaged and fail to pass signals, giving us important clues to possible treatments for DLB.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Chris Morris

Kyran Jonah Weedon

BA Hons Architecture

"Embodied Staffage: Representational Mimesis of the Northfleet Disaster at Dungeness"

Embodied staffage refers to the assignment of identity and narrative to figures within artwork, evoking spatial mimesis through the lens of physical human experience. While the replication of reality in art often triggers emotional responses, the specific application of embodied staffage remains largely unexplored.

This concept finds resonance in places steeped in history and culture, like Dungeness—a shingled hamlet on the Kent headland. Known for its striking landscape, vibrant artistic community, and unique architectural style, Dungeness is frequently celebrated in modern media. However, as its contemporary image flourishes, the historical narratives of its once-thriving fishing community, such as the Northfleet Disaster of 1873, have faded from public consciousness. This study re-examines how such forgotten histories are experienced today, and focuses on the embodiment of fishermen in historical representations. By revisiting these narratives, my research explores how the physical presence of figures in art restores deeper connections to the past.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Kati Blom

Lai Man Yue

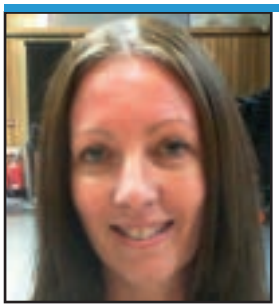
MBBS (NUMED Malaysia)

Understanding the mechanisms of Zinc-induced impaired network activity in human cortical neurons

Zinc (Zn) is an essential micronutrient in our body that is involved in brain function. Dysregulated Zn levels in the brain are associated with psychiatric disorders like Schizophrenia and Alzheimer's disease. In the project with which I assisted, we reprogrammed normal somatic cells (via skin biopsy) into induced pluripotent stem cells and differentiated them into glutamatergic neurons (brain cells). Different concentrations of Zn were then added to the neurons, and the neuronal activity before and after adding Zn were recorded using multi-electrode arrays (MEA) and analysed using softwares such as Neural Metric tool, PRISM and MATLAB. MATLAB showed that a high concentration of Zn significantly decreases neuronal activity. Drugs like an NMDA agonist were then added to the neurons with Zn. NMDA agonism was shown to have a reversible effect in neurons with a low concentration of Zn but an irreversible effect in neurons with a high concentration of Zn. Gene expression analysis was done using qPCR afterwards to determine which gene was affected by adding Zn.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Mouhamed Alsaqati



Laura Percival

BSc Speech and Language Therapy

Exploring how aphasic clients with depression (post stroke) are best supported from the perspective of local Speech and Language Therapists

The Tavistock Aphasia Centre, based within the Speech and Language Sciences Department is a campus clinic for student speech and language therapy training. Clients with aphasia (an acquired communication disorder) as a consequence of stroke are referred by NHS speech and language therapists (SLTs) for intensive treatment. Recent data indicates there has been an increase in clients with aphasia presenting with significant low mood or depression. This can negatively affect their intervention and poses challenges for students working with individuals with more complex needs. This project aimed to design and deliver focus groups with local NHS SLTs to discover how the different trusts identify and support people with aphasia and depression. We gathered valuable qualitative data from the group which gave us a deeper understanding of experiences of practitioners, the outcome of which will promote a more effective collaboration between the Tavistock Centre and NHS referrers, thus improving outcomes for individuals with aphasia and support for student education.

Funded by: Barbara Stringer Research Scholarship

Project Supervisor: Mrs Jennifer Dodds-Vigouroux

Lucy Smith

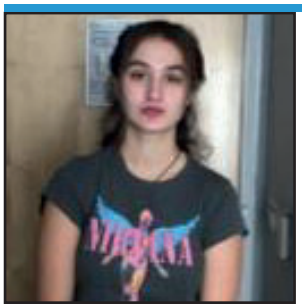
Master of Speech and Language Sciences

Developing Research-Led Comprehension Paragraphs for Reading Therapy for People with Aphasia

Aphasia is a communication difficulty acquired post-stroke. Aphasia can lead to paragraph-level reading difficulties which can impact the person's ability to participate in a range of meaningful activities. The project involved developing reading comprehension materials designed for speech and language therapists (SLTs) to assist individuals with aphasia who struggle with paragraph-level reading. In addition to texts, corresponding summaries and multiple-choice questions were developed to improve efficiency in clinical practice. The texts, developed from online news articles, are naturalistic, relevant to common interests, and their complexity is informed by research literature and views of SLTs working at the Tavistock Aphasia Centre. Each text ranges from 100 to 200 words, with a readability level suitable for ages 10 to 14. Two experimental studies with typical readers ensured the robustness of the materials - readers identified the main ideas and ensured people have to read the paragraphs to answer the questions.

Funded by: Barbara Stringer Research Scholarship

Project Supervisor: Dr Janet Webster



Madeleine Robertson

BSc Hons Zoology

Passive acoustic monitoring and AI for wildlife conservation

This project aimed to build an AI model that would be able to be used as a passive acoustic monitoring tool for identifying the presence of muntjac deer. Over a period of eight weeks between June and August at Balls Wood and Astonbury Wood in Hertfordshire, I recorded two hours before and after midnight using twenty AudioMoths. I then manually reviewed all of the audio files and cut out any muntjac calls, which I used along with other recorded noise (rain, aeroplanes, tawny owls etc.) and audio files of sounds that are similar to muntjac calls and commonly found in British woodlands (crows, pheasants etc.) from an internet sound bank to train an AI model that is able to accurately identify muntjac calls.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Roy Sanderson

Matthew Gabrielli

Master of Speech and Language Sciences

Converting research findings from an international study on autism (Supporting the learning and wellbeing of autistic children and young people (churchillfellowship.org) to a user-friendly website for educators (schools, nurseries), where institutions can find accessible resources to support autistic individuals and increase awareness

This project aims to create accessible resources in the form of a user-friendly website for educators, to support the development of autism friendly schools. Recent research has indicated that autistic children and young people often feel unhappy at school and feel that they are not well understood by teachers and their neurotypical peers. Parents of autistic children and young people have reported their concerns that their autistic children are not adequately supported in their academic progression or fully included in the social learning environment in schools. Autistic children and young people often report that they feel isolated from their neurotypical classmates. This project will draw on a report into recent developments in participatory research methods and approaches to provide resources for educators to support the wellbeing and learning of school aged autistic children and young people.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Nicholas Riches

Milla Grace Withers

BSc Hons Biochemistry

How does the retinoblastoma protein bind to cyclin D?

A cell can only divide once it has passed through the restriction (R) point. This transition requires phosphorylation of the retinoblastoma protein (Rb) by cyclin-dependent kinases 4 or 6 (CDK4/6) bound to D-type cyclins. Cyclins direct CDKs to phosphorylate their substrates via specific docking interactions. The Rb C-terminal alpha helix was recently shown to bind specifically to cyclin D. However, the binding site on cyclin D for the C-helix is unidentified.

AlphaFold models predict a previously uncharacterised a-helical docking site on cyclin D3, a D-type cyclin. This project tested the binding of cyclin D3 variants with mutations to the predicted site against the Rb C-helix. We also tested the binding of a mutated Rb C-helix that was previously shown to have reduced binding to cyclin D. Although the Rb C-helix mutations reduced binding to cyclin D3, further work is required to confirm the Rb C-helix-cyclin D interaction.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Jane Endicott

Mohamad Tamer Taha Ismail

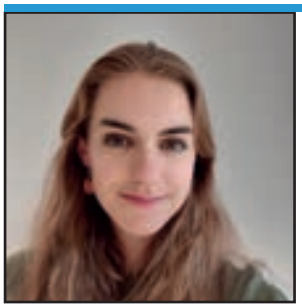
MBBS (NUMED Malaysia)

Investigating the effect of transcranial direct current stimulation in healthy young and older adults on cortical activity, muscle activity and gait parameters

During my recent project, I explored the impact of transcranial direct current stimulation (tDCS) on cortical and muscle activity in young and older adults. I gained practical skills in analyzing EMG (electromyography) data using Python, OpenHDEMG, and MATLAB, which helped me assess muscle activity patterns. Additionally, I processed fNIRS (functional near-infrared spectroscopy) data using Excel and SPSS to identify links between brain activity and cognitive tasks. My hands-on experience included using an EMG machine for experiments, and I utilized Biolab software for data collection. The project demonstrated that tDCS improves brain efficiency, particularly in younger adults, while having a less pronounced effect in older adults. This experience enriched my skills in data analysis and experimental procedures and offered a deeper understanding of neuroscience methodologies.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Annette Pantall



Molly Pettitt

Master of Speech and Language Sciences

Language Skills of Adults and Adolescents with Cleft lip and/or Palate: A Scoping Review

Research shows that children with cleft lip and/or palate (CLP) are more likely to experience early language delay than their peers, and literature on children's language development indicates that language difficulties present at age four are more likely to persist.

However, there is little research beyond childhood of language difficulties in individuals with CLP. Therefore this scoping review aimed to identify the quantity, variety and outcomes of research investigating language skills of adults with CLP to understand the long-term impact of these difficulties and the quantity of research available.

This review found 21 papers which investigated this topic. The majority of this research lacked detail on the language skills of participants. This indicates more robust research is needed into this area, particularly as the limited evidence available suggests that these language difficulties in individuals with CLP persist into adulthood.

Funded by: National Institute for Health and Care Research

Project Supervisor: Dr Stephanie van Eeden

Nakshatra Sivaraj

BSc Hons Biomedical Sciences

Neutrophil immune function in paediatric tracheostomised patients

Paediatric tracheostomy is a procedure done mostly in infants to enable long-term ventilation, bypass airway obstruction, or assist weaning. However, it is often associated with respiratory complications, leading to frequent hospital readmissions and poor quality of life. Despite this, the impact of tracheostomy on the innate immune function remains largely unexplored. Therefore, this study aims to characterise and assess functional abnormalities of neutrophils in the trachea and systemic circulation of tracheostomised children. Flow cytometry was used to study the expression of neutrophil surface markers in the aspirate and blood sample, before and after exposure to *Staphylococcus aureus* particles. The results revealed a lower intensity of several surface markers in the airway of the tracheostomised patient compared to the control, suggesting a local impairment in neutrophil recruitment and function, including reduced phagocytosis and increased inflammation upon bacterial exposure. Research involving a large sample size is needed to validate these findings further.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Mr Jason Powell

Paul Gerhard Mock

BSc Hons Biology

The multi-faceted role of algae in the Lake District aquatic ecosystem

This project aimed to achieve a basic understanding of the microalgal ecology of the Lake District to lay a foundation for future studies. As such the work has been very exploratory. Regular sampling has produced a bank of nutrient profiles, preserved cells, and basic ecological profiles via microscopy. Additionally, samples have been sent for 16S and 18S sequencing, which appears to be the first ever look at the microbial diversity through molecular techniques in the lakes. Attempts to isolate diazotrophs from the lakes have resulted in cultures at various stages of isolation, with an *Anabaena* culture partially established for future research in N-fixation and cyanobacterial physiology. Although this project did not follow the traditional hypothesis, test and record format, preliminary findings suggest that cell densities are in regular flux and varied assemblages are likely correlated with nutrients, although future molecular results will further our understanding.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Sam Wilson

Paul Michael Hogan

MBBS

PARTNERS in Medicine Admissions

Widening participation (WP) schemes are an important element of university admissions that are designed to help students from underrepresented groups access higher education.

The initial aim of this project was to analyse the impact that WP schemes have had since their implementation at Newcastle University, specifically looking at admissions and ongoing participation of students on the MBBS (Bachelor of Medicine, Bachelor of Surgery) programme.

Early on, it became clear that the remit for this project was broad and that there are many ways in which students can qualify as WP applicants. Newcastle University Medical School were unable to provide full widening participation data so it was decided that to keep within time constraints, the project would pivot to focus on Newcastle's own PARTNERS programme. Through PARTNERS, applicants may be given a lower offer if they meet certain contextual criteria. The findings in the project poster concern the PARTNERS programme only.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Bas Olthof

Polina Shanina

BSc Hons Biomedical Sciences

Characterisation of Primary Cilia in Prostate Cancer as a New Mechanism of Drug Resistance

This research scholarship was focused on identifying the role of primary cilia in advanced prostate cancer cell lines (PCa) and investigating the potential reasons for resistance in cell lines (such as PC3 and LNCaps) to androgen deprivation therapy (ADT) in light of the differences in expression of primary cilia. Primary cilia are organelles that maintain cellular homeostasis, and their loss is usually linked to cancer progression. This investigation involved the use of LNCap, PC3, CWR-22, and PNT-2C2 cell lines, with the latter acting as a control.

The findings showed that out of the four cell lines, PC3 (androgen-insensitive) displayed a significant increase in cilia length alongside a marked decrease in cilia abundance, supporting the hypothesis of lower cilia counts being associated with more advanced forms of cancer. Conversely, CWR-22 showed a slight increase in cilia numbers, while LNCaps showed no significant difference in abundance of cilia compared to control.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Adriana Buskin

Prama Lekhwani

BSc Hons Psychology

Responses to attachment related imagery and the experience of anxiety

Attachment theory suggests that early experiences shape personality and interpersonal relationships,and the dimension of attachment anxiety has been found to be associated with a variety of anxiety symptoms and difficulties. Provisional evidence shows that negative mental imagery might play an important role in the experience of anxiety and attachment-related issues, but the nature of this imagery has not yet been fully understood. This study investigated how attachment-related anxiety influences negative mental imagery, exploring emotional regulation strategies in response. Semi-structured interviews were conducted and thematic analysis was used to deepen our understanding of the cognitive and emotional mechanisms underlying attachment anxiety and its effects on prospective imagery. A significant role of past experiences, relationships and interactions found to cause distressing mental imagery and high amounts of resultant anxiety. Participants also report blocking out mental imagery as a coping mechanism, and participants experienced more distressing romantic mental imagery.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Gavin Clark

Priyanka Sachdev

MBBS (NUMED Malaysia)

Assessing the use of nonsense read-through compounds for the treatment of polycystic kidney disease

Autosomal dominant polycystic kidney disease (ADPKD) is a genetic condition leading to kidney failure with one gene called PKD1 being responsible for most cases. These genetic changes can result in an error called “nonsense mutations” which mess up tiny hair-like structures on kidney cells called cilia. Drugs called “stop codon read-through compounds” have the potential to fix the genetic errors causing ADPKD. When these drugs are used, they can make the cells “ignore” the genetic error and produce a complete and working protein. Our goal is to study kidney cells from ADPKD patients who have these nonsense mutations in the PKD1 gene. During my time in the lab, we isolated and grew patient urine cells to examine their cilia before and after treatment with different new stop codon read-through drugs. From the results, it has allowed us to better understand how well the drug works and could be a crucial step in developing a treatment for ADPKD patients.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor John Andrew Sayer

Sachiko Haryson

BEng Hons Civil and Structural Engineering

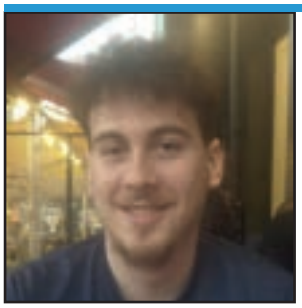
Indonesia's Palm Oil Plantations: How Poverty Fuels Pollution in Low- to Middle-Income Countries

Indonesia's societal and environmental well-being faces turmoil in the absence of stringent monitoring of industrial practices, resulting in severe pollution and a corresponding decline in quality of life. Stigmatising the root cause of pollution as a direct externality of negligent environmental choices is a privileged misconception that often overlooks the reality faced by low- to middle-income countries like Indonesia. Housing a third of the ASEAN population, where a significant portion lives below the poverty line (O'Neill, 2023), pollution is often an unintended consequence of economic survival.

This research examines the complex relationship between poverty and pollution, focusing on palm oil plantations. In this context, poverty not only suffers from pollution but also drives it, as communities reliant on agriculture resort to environmentally harmful practices to sustain their livelihoods.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Claire Walsh



Selim Hudayioglu

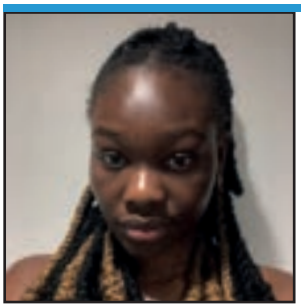
MSci Biomedcial Sciences

Elucidating the role of hippocampal hyperexcitability in a transgenic mouse model of dementia with Lewy bodies

Patients with neurodegenerative diseases including dementia are known to exhibit an increased incidence of epilepsy which may enhance disease progression. This summer project investigated early hippocampal hyperexcitability differences between wild-type (WT) control mice and a transgenic (A30P) mouse model of dementia with Lewy bodies (DLB). The transgenic A30P mouse model harbours a point mutation in the SNCA gene encoding alpha-synuclein, leading to overexpression. In line with the previous findings which have demonstrated that A30P mice display increased hippocampal excitability, local field potentials were recorded from hippocampal slices from both WT and A30P mice to investigate the differences in gamma frequency oscillations. Epileptiform activity differences between genotypes were also studied under known excitatory compounds which evoke interictal discharges and seizures. The frequency and amplitude of the gamma oscillations and the frequency and types of epileptiform-like discharges and the number of seizures were analysed. It was found that A30P exhibited more seizures, displayed more complex bursts, and had a different gamma frequency activity pattern than WT mice.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Fiona LeBeau



Somtochukwu D Uche

MBBS

Developing a Closed-loop Intervention for Pressure Ulcer Prevention: A Literature Review and Proof of Concept

Pressure ulcers or pressure sores, present a significant challenge for patients and healthcare professionals. In the United Kingdom, over 70% of individuals in long-term care facilities are affected, while studies in the United States report more than 3 million cases annually. Current guidelines recommend repositioning patients every 2-4 hours to prevent these ulcers; however, understaffing within the NHS can hinder this practice. Although various pressure-relieving devices exist, research indicates that they are often less effective than regular repositioning.

This project aimed to conduct a comprehensive literature review and develop a proof-of-concept prototype. Our review identified key areas for improvement in mattress design, resulting in a closed-loop system that redistributes pressure in real time, thereby preventing ulcer progression.
Given its potential to reduce pressure ulcer incidence and improve patient quality of life, we hope to pursue future studies to evaluate its effectiveness in real hospital settings.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Dr Jennifer Olsen, Jacopo Franco and Dr Matthew Dyson

Sophie Robson

Master of Pharmacy with Honours

The impact of outdoor air pollution on Alzheimer's disease: a systematic review

Air pollution is a major global health risk. Neuroimaging techniques have revealed the impact of long-term exposure (months to years) to outdoor air pollution on brain health. We conducted a systematic review to explore the effects of long-term exposure to outdoor air pollutants on Alzheimer's disease (AD)-like brain changes. The review was registered on PROSPERO (CRD42023482979) and followed PRISMA guidelines. Embase, Medline, Scopus, and CINAHL were searched using terms associated with "air pollution", "neuroimaging" and "AD". Peer-reviewed articles using neuroimaging to assess AD-like brain changes after exposure to long-term air pollution were included. After full-text screening, ten articles were included and quality assessed. Nitrogen dioxide and particulate matter 10 were associated with reduced cortical thickness, however, expected cognitive decline didn't always coincide with these changes creating uncertainty. Cortical thinning could predispose individuals to AD development and further research is needed to determine whether air pollution is an AD risk factor.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Sarah Slight, Dr Nehal Hassan and Dr Sarah Wilson

Sterling Edwin Matthias Gibson

MEng Hons Chemical Engineering

Arbitrary Angle Rotations of Bose-Einstein Condensates

I investigated the dynamics of Bose-Einstein condensates, for a simple rotation about the Z-axis and for an arbitrary rotation, using the traditional method of Euler angles and rotation matrices and then by using a novel method of quaternions.

I showed that Euler angles display an issue known as gimbal locking where certain rotations become degenerate and it is no longer possible to model them.

I adapted a method to solve the problem of gimbal locking from computer graphics which uses quaternions instead of Euler angles.

I derived the equations of motion in the quaternionic formalism and subsequently proved that my equations avoided the issue of gimbal locking and could be used to model rotations by angles that were not possible to model using the traditional Euler angle method. This method will facilitate the modelling of more complicated rotated Bose-Einstein condensate dynamics in the future.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Srivatsa Badariprasad

Syed Muhammad Fitrus Ali

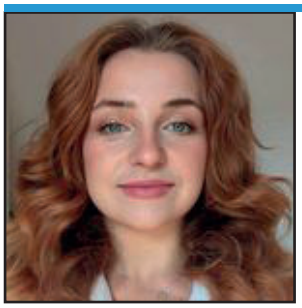
MBBS (NUMED Malaysia)

Outdoor air pollution as a risk factor for Alzheimer's disease: A systematic review

Exposure to outdoor air pollutants could harm brain health. We conducted a systematic review to examine the impact of prolonged exposure to outdoor air pollution on the development and progression of Alzheimer's disease (AD) using Magnetic Resonance Imaging (MRI) data. This review followed PRISMA guidelines and screened four main databases: Scopus, CINAHL, Embase and MEDLINE (via Ovid). In total 262 articles were screened of which 10 were included. White and grey matter changes are considered key biomarkers of AD. Exposure to air pollutants, particularly $PM_{2.5}$, led to a reduction in white matter volume in key brain regions linked to AD. This was associated with a decline in episodic memory and cognitive functions. Four studies showed a decrease in grey matter volume due to air pollutant exposure, while one study reported an increase. This review demonstrates air pollution as a risk factor for AD and suggests future research on grey matter changes.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Professor Sarah Slight, Dr Nehal Hassan and Ms Sarah Wilson



Taisha Peplowska

MBBS

Targeting Bile Acid Receptors in Motor Neuron Disease

Motor nerves travel from the brain, via the spinal cord, to the muscles and carry the messages telling them to move. Motor neuron disease (MND) is a devasting disease in which motor nerves die leading to paralysis and death, typically within 5 years of diagnosis. There are currently no treatments for MND. Recent studies suggest that compounds found in bile (a complex liquid that comes from the liver) called bile acids, might have the ability to protect nerve cells from dying. Bile acids need to bind to proteins called receptors to work. In this project I investigated whether a drug which binds to bile acid receptors can be even more effective at preventing motor nerves from dying. We treated human motor nerves grown in a dish, from stem cells of patients with MND, with a drug that targets bile acid receptors and investigated whether this aids neuron survival.

Funded by: Association of Physicians

Project Supervisor: Dr Helen Devine

Tobias Koran

MSci Biochemistry

CHD1 Knockout Prostate Cancer Cell Line Generation

Prostate cancer (PC) is a severe tumour-causing illness and a significant cause of cancer-related mortalities. CHD1 is a chromatin remodelling enzyme involved in allowing processes like transcription or repair to take place on DNA. Since loss of CHD1 occurs in ~10% of PCs where it contributes to disease progression, generating a CHD1 knockout cell line would prove invaluable in studying the role of CHD1 defects in PC.

Various cell lines were gene-edited using CRISPR/Cas9 and short guide RNAs specific for the CHD1 gene. Afterwards, the relative knockdown of CHD1 expression was determined. SDS-PAGE and Western blotting followed by densitometry analysis revealed the desired CHD1 knockdown in the 22Rv1 line using one of two guides. This result was validated through PCR amplification and sequencing of the altered gene, showing a 56% rate of localised insertions/deletions, a marked success as usually around five guides need testing before an effective one is identified.

Funded by: Newcastle-Liverpool-Durham Biotechnology and Biological Sciences Research Council Doctoral Training Programme (NLD BBSRC DTP)

Project Supervisor: Dr Luke Gaughan

Valyn Tang Yi Tein

MBBS (NUMED Malaysia)

The role of complement in IgA nephropathy

IgA nephropathy (IgAN) is an autoimmune disease that is the most common form of chronic kidney disease. In IgAN, the patient's immune system considers the body's protein (IgA1) to be harmful and generates autoantibodies to bind with it, forming IgA immune complexes. These immune complexes deposit in the kidney and activate the alternative pathway of the complement system, which is controlled by Factor H (FH) protein. However, FH related (FHR) proteins can inhibit the regulatory mechanism of FH proteins, and potentially result in dysregulated immune activation. Using serum samples from healthy individuals and IgAN patients with ELISA, SDS-PAGE and western blotting to compare the concentration of FH and FHR1, we established that significantly higher levels of FHR1 is present in IgAN samples, but there is no significant difference in FH concentration between the 2 groups. This study suggests reducing FHR1 levels may offer a novel treatment option for IgAN patients.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Professor Kevin Marchbank

Yihan Shi

MBBS

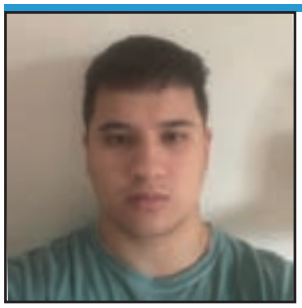
Correlating clinical outcomes of multiple myeloma patients treated with TCEs and bone marrow phenotypes at baseline

Multiple myeloma is a type of blood cancer that affects plasma cells in the bone marrow, leading to issues like weakened and painful bones. This project examines the outcomes of multiple myeloma patients treated with T-cell Engagers (TCEs) at University College London Hospitals. TCEs are a type of immunotherapy that help the immune system target and destroy cancer cells by bringing T-cells and cancer cells closer together. The study aims to see how well patients respond to TCEs by analyzing their bone marrow samples, focusing on immune cell types like T-cells and markers. This is the largest ever UK cohort study of its kind.

Key findings show that patients with lower levels of CD38+ cells and higher levels of CD127+ cells in their bone marrow before treatment tend to respond better to TCEs. Understanding these immune patterns could help predict which patients are more likely to benefit from TCEs.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Professor Kwee Yong and Dr Lydia Lee (UCL)



Benjamin Wagman, Tom Gibson and Hamish Storrar

BSc Hons Food Business Marketing and Management, BA Hons Urban Planning and BSc Hons Economics

An investigation into plastic pollution and mitigation policies used in different municipalities across Thailand

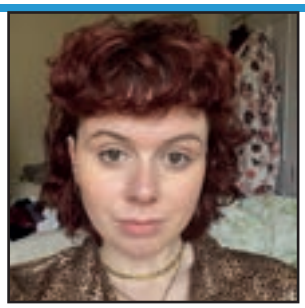
The Objective of our research was to investigate and evaluate the effectiveness of Thailand's National and local Policies, that have been implemented to tackle plastic pollution in Urban and Tourist bound areas. We set out to use information gathered throughout the research to provide more insight and raise awareness about the plastic pollution problem and provide possible solutions to improve the situation and waste management. In the first part of our research, we found secondary data on the current National policies Thailand has as well as data which measured and evaluated the implementation and effectiveness of these policies. We then identified areas where Plastic pollution is the most significant issue.

4 different locations (Bangkok, Krabi, Koh Phi Phi, Koh Samui) consisting of rural and tourist areas were examined, and by observations we were then able to perform an analysis and refine and verify the credibility of the secondary data. We also used this opportunity to observe the effectiveness and credibility of the national and local policies whilst giving us useful first-person insight to evaluate the reason why the policies were not working effectively. Additionally, we made note of any local policies which could be implemented nationally to further improve the nationwide issue regarding plastic pollution. From this we were able to form a conclusion and provide suggestions to alternative policies which could be implemented to achieve a more effective reduction and improvement in aggregate plastic pollution across the Kingdom of Thailand.

Through following up on secondary data, we interpreted it using inspiration from models described in the book 'The Behaviors Change wheel".

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Beth Clark



Olivia Plumpton and Isabel Garritt
MBBS

‘Ur-ine breach of minimum retesting intervals!’ : An exploration of the environmental and financial costs associated with sample rejections from NHS microbiology laboratories, reasons why sample rejection occurs, and effective interventions to limit waste in the pre-analysis phase of microbiology testing

Climate change is one of the most significant modern issues facing our planet so improvements must be made to make human activities more sustainable. The NHS were one of the first national healthcare systems to legislate a net zero plan, aiming for net zero CO2 and other greenhouse gas emissions by 2045. We wanted to develop a project that would help support this plan.

This quality improvement project explores the causes and impact of inappropriate requests to microbiology laboratories that result in negative environmental impact. We collected data from 2 NHS Trusts on how many samples were being rejected before analysis, the type of sample and the reasonings why. The most common rejection sample was urine, so we calculated the financial costs and carbon footprint of the pre-analytical rejection of urine samples to visualize the extent of this issue and the scope for improvement.

To inform strategies to reduce the number of samples sent inappropriately, we reviewed previous literature and formulated a survey for healthcare professionals to complete. Results indicated a need for guidance on how and when to request and collect urine for culture. We developed a flowchart outlining the criteria required for urine sampling and the correct process of requesting laboratory analysis, to inform clinicians and help prevent wastage.

We hope this project will provide further momentum for future projects to focus on reducing waste and therefore the carbon footprint of the NHS.

Funded by: Newcastle University Research Scholarship

Project Supervisor: Dr Sarah C Walpole

Wong Cheng Lam and Shanti Herve-Gruyer
BA Hons English Literature With Creative Writing and BA Hons Politics and International Relations

How does the play *Antigone* give us an insight into politics, literature and society in both Ancient Athens and today?

Our research aims to investigate the political values and philosophies of Ancient Greek societies, and explore its relationship to politics, literature, and society today. Through the play Antigone by Sophocles, reading secondary sources and field work in Athens to understand the impact of Ancient Greece; we have analyzed the themes in the tragedy which are autocracy and despotism, gender, and civil disobedience. The play deals with a tyrant, Creon, the king of Thebes who forbids Antigone to bury her brother. This tyrannical act is defied by Antigone deciding to bury her brother anyways and was executed for it. The autocracy shown in the play reflects Ancient Greece at the time and remains relevant to nowadays as we can see from Russia and North Korea. Antigone also depicts the struggles of women that are still apparent in Ancient Greece and modern society. For example, men still hold the most positions and power in politics. Finally, the question of civil disobedience is still something that is debated in present times. Antigone breaks a law (by burying her brother) because she believes it is the right thing to do; and people are still breaking laws in peaceful, nonviolent ways nowadays to protest what they think are right. In conclusion, a lot of issues in Ancient Greece still exist today; literature and politics are intertwined and have always reflected on societies and commented on them. Henceforth, Antigone will forever remain a classic.

Funded by: Newcastle University Research Scholarship

Project Supervisors: Dr Skyler Hawkins and Professor Federico Santangelo

University Research Scholarships and Expeditions 2025

The University will once again support student expeditions and research scholarships in 2025.

2025 applicants are, however, encouraged to seek external funding wherever possible. Further information about the schemes, including details about eligibility criteria and applications procedures will be available on our webpages.

Information about posters, presentations and the celebratory event from previous years can be found at **https://research.ncl.ac.uk/expeditionresearchscholarships/postergalleries/**, presentations and prize winners will be available on this website from the end of January 2025.

Students cannot hold both University Expeditions Committee funding and Research Scholarship Committee funding in any one year.

University Expeditions 2025

Information about submitting applications for University Expeditions Committee funding will be available soon from Student Financial Support web pages at:

www.ncl.ac.uk/student-financial-support/research-funding/expeditions/

University Research Scholarships 2025

Information about submitting applications for University Research Scholarships Committee funding will be made available soon from the Student Financial Support web pages at:

www.ncl.ac.uk/student-financial-support/research-funding/

Feedback from previous participants

Below are a selection of comments from previous research scholarship recipients:

"Found the process rewarding.

Numerous opportunities to learn new skills- data collection and analysis, and evaluating the quality of resources".

"I have made really good contacts for future research and have realised it is a viable option. Also it has given me much more confidence in my academic abilities. My supervisor has given me lots of options about future research such as Masters and PhD programmes within the University. I have also spoken about my experiences to other members of my course which does not traditionally move many students on to research immediately post-graduation."

"It has made me consider research as a career and lab work too. Before I didn't have the confidence but after doing the research project I feel I could do this. I had a really enjoyable time and learned a lot."

"It provides undergraduates with the opportunity to experience research while being confident to make and learn from mistakes. It also allows you to get to know how you like to work, and what makes you work effectively - an important skill for any piece of work."

"The support and encouragement given by the University and Supervisor has increased my confidence and shown me that I am capable of taking on and completing research projects in areas of personal interest"

"I am sure now that I want to pursue research as a career"

"The scheme is amazing and massively enhances student experience at the university"

2024 Research Scholarships and Expeditions Scheme Feedback

If you were funded to undertake a summer research during the summer of 2024 we hope that it was a rewarding experience for you. We strive to improve the scheme each year and would greatly appreciate feedback regarding your experiences and thoughts.

A short survey, which should take only a few minutes to complete, is available at:
https://forms.office.com/e/R9cseESpbP

Alternatively, if you have any additional feedback not covered in the survey please do not hesitate to contact us at: vacation-scholarships@ncl.ac.uk

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