Celebrating Research Scholarships and Expeditions 2018
Wednesday 21st November
Professor Suzanne Cholerton
Pro-Vice-Chancellor (Education)

Newcastle University places a high value on students pursuing new knowledge, developing independence of thought, and being exposed to the culture of research. The University supports undergraduate students with scholarships to work alongside researchers on summer vacation projects and, through its expeditions scheme, to undertake field research in other countries. Both these schemes enable students to experience research at first hand and to develop key skills through a wide range of activities, such as researching new archival material in Newcastle or further afield, working on archaeological material, collecting, analysing and interpreting social data, working on a laboratory project alongside members of a research team, travelling to another part of the world to undertake a research project in an unfamiliar and challenging environment.

Conducting independent research with the support of more experienced researchers can have a very positive impact on the confidence and motivation of students. By giving students the opportunity to work closely with staff through these schemes students are able to understand the research activities of academic staff, and to have a window on the research environment. For some students the experience of working on a ‘live’ research project will stimulate or confirm an interest in postgraduate research, for others it will be a way of integrating knowledge, enhancing the learning experience and developing valuable skills and attributes.

As well as encouraging students to explore their interest in pursuing further research the University has a strong ethos of supporting interdisciplinary work which allows students to work collaboratively on joint research projects. For the first time this year collaborative interdisciplinary research projects undertaken by small groups from different faculties or subject areas have been funded from the Research Scholarships Scheme. In addition, the projects undertaken by students participating in Newcastle University Humanities Research Institute’s Challenge Labs scheme will also showcase the endeavours of students working collaboratively: this scheme sees both undergraduate and postgraduate students working together in groups to address challenges in humanities.

Whatever the domain of activity, these research activities provide an opportunity for students to find out what research is like, to develop research and problem solving skills and to engage in enquiry based learning. The production of a poster at the end of the project helps to develop the student’s presentational skills and underline the importance of being able to communicate research findings to a variety of audiences.

I hope that all of the students who were successful in gaining funding to support their research projects will have benefited from their experience through an enhanced understanding of the value of research, and an increased confidence in their research and professional skills.
The history of student expeditions at Newcastle dates back to 1948 when a small group of Geography undergraduates took part in a pioneering expedition to Iceland, guided by Hal Lister, who later became a Reader in the Geography Department and a noted Arctic and Antarctic explorer. Subsequent expeditions over the past seventy years have been organised and conducted by students from a wide range of disciplines from each of the three University faculties to more than seventy different countries. Recent expeditions over the past five years have taken place in more than fifteen diverse destinations including Brazil, Costa Rica, Ethiopia, Fiji, Greenland, Nepal, 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 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 usually 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 gain a wide range of valuable skills and also benefit from team-working and leadership experience. In addition to the hugely rewarding experience that students gain throughout the whole expedition process from 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.
Newcastle University’s thriving Research Scholarship and Expeditions programmes go from strength to strength.

Once again this year there has been enormous interest in student Research Scholarships and around 108 projects were undertaken across most schools in all three faculties – Humanities and Social Sciences, Medical Sciences and Science, Agriculture and Engineering. While many Research Scholarships were funded by the University, 14 received external funding from other organisations, including the Genetics Society, the Royal Society of Chemistry and the Wellcome Trust. Successful scholarships were also undertaken by Newcastle University students based at the University’s branch campus in Malaysia.

In 2018 two Expeditions were undertaken by students from the Faculty of Humanities and Social Sciences. Funding towards these expeditions was awarded by the University’s Expeditions Committee, as well as other external organisations, such as the Royal Geographical Society.

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 undertaken during 2018 are described in this brochure and academic posters can be viewed both before the oral presentations and on the website following the event.
Reception and Presentation Evening

The presentation evening celebrating recent student research scholarships and expeditions takes place on Wednesday 21st November 2018. From 4:15pm in the Lindisfarne Room, Hadrian Building, a display of posters will show student research scholarship and expedition achievements and provide an opportunity to speak to the students who have carried out the research. From 5:30pm, in the Curtis Auditorium, Herschel Building, a number of students will make presentations about six selected research scholarship projects and expeditions describing their aims, how they conducted their research and the outcomes. At the conclusion of the presentations the winning student posters for 2018 will be announced by the Pro-Vice Chancellor (Education) and winners will be presented with certificates and prizes.

<table>
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<th>Time</th>
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<tr>
<td>4:15-5:15pm</td>
<td>Academic posters available for public viewing in the Lindisfarne Room</td>
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<td>5:30-5:40pm</td>
<td>Welcome and introductions by Prof Suzanne Cholerton and Dr Emma Pearson</td>
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| 5:40-7:15pm | Presentation 1- Ausaf Hayat Khan  
Presentation 2- Cathleen Burton  
Presentation 3- Nicholas Sundin & Team  
Presentation 4- Cristovao Mario Cacome  
Presentation 5- Marco Romeo Pitone & Team  
Presentation 6- Ann Waschko |
| 7:10-7:15pm | Announcement of poster winners by Prof Suzanne Cholerton and presentation of awards to students |
| 7.20pm     | Informal supper reception in the Lindisfarne Room          |
Presentations

Ausaf Hayat Khan
*MPharm Pharmacy*
A Review of Patient Decisions Aids in Older People to Address Polypharmacy

People are living longer and the number of those aged over 65 is increasing. Many individuals often have multiple conditions, for which they are prescribed numerous medications. This can lead to ‘problematic polypharmacy’, where multiple medications are prescribed inappropriately, or where the intended benefit of the medication is not realised. Clinical guidelines and decision support tools are used by clinicians to help address problematic polypharmacy. However, the majority concentrate on single disease states and do not consider patient views in the decision-making process. This systematic review explored the use and impact of patient decision aids in multi-morbid older patients to help address problematic polypharmacy. We identified three key themes: patient empowerment, medicine optimisation and strengthening of the ‘Doctor-Patient Relationship’ across ten articles. These decision aids enabled clinicians to become more aware of patient priorities, helped build rapport with individuals, and make changes to treatments to reduce problematic polypharmacy.

*Funding source: Biomedical Research Centre*
*Supervisor: Prof David Lydall*

Cathleen Burton
*BA (Hons) Archaeology*
Materialising Witchcraft at the Salem Witch Trials (1692-1693)

The Salem Witch Trials (1692–1693) relied on accounts of visions, called spectral evidence, to convict suspected witches. The Salem courts kept extensive records of examinations, testimonies, and indictments, all now available online. By examining the documents this project aimed to identify the material culture associated with occult practice during the Salem Witch Trials, in order to gain a better understanding of the Puritan image of a witch. The puritans believed that witches’ magic caused unfortunate occurrences in everyday life, therefore everyday items, such as farming equipment, are regularly noted in the trials. In some cases, witches used poppets and pins as part of their magical actions: these objects were also mentioned in British witch trials and European folk traditions. The Puritans imagined witches riding on sticks, accompanied by the devil in a high crowned hat: a view which certainly contributed to the modern image of a witch riding a broom in a pointed black hat.”

*Funding source: Newcastle University*
*Supervisor: Dr Jane Webster*
Cyprus has been an island long divided along national/ethnic lines, since independence from Britain in 1960, and since the Turkish invasion in 1974. Since then, a number of international actors have sought to bridge the divide and end the conflict. The United Nations has maintained a peacekeeping force since 1964 after intercommunal violence broke out and patrols the buffer zone between the Republic of Cyprus (RoC) and the Turkish Republic of Northern Cyprus to this day. Talks continue to try and resolve the conflict but they have so far failed to find a resolution. The RoC joined the European Union in 2004, which has raised further questions, issues, and potential solutions to the conflict, especially considering Turkey’s changing internal politics and relationship with the EU. The financial crisis of 2008, followed by subsequent crises in the Eurozone and Cyprus itself in 2013, lead to the European Central Bank bailing out the RoC and imposing strict conditions, causing political backlash within the RoC (Johnson, 1997). The United Kingdom has maintained a military presence in Cyprus after independence with the Sovereign Base Areas of Akrotiri and Dhekelia – technically British Overseas Territories - acting as both a platform for British power projection in the Mediterranean and Middle East, and as a means to direct internal Cypriot politics to suit British foreign policy. The bases have also elicited protest and opposition - when Demetris Christofias was elected president of the RoC in 2008, he pledged to remove foreign bases from Cyprus (Stergiou, 2015).

Funding source: Newcastle Expeditions Committee, Royal Geographical Society
Supervisors: Dr Craig Jones, Dr Matthew Benwell and Dr Nick Megoran.
Cristovao Mario Cacombe  
MEng (Hons) Electronics Communications  
Motorised finger for Partial hand amputation

Partial hand amputation is by far the most common type of amputation worldwide. Nevertheless, regardless of their potential clinical and socioeconomic impact, battery-powered partial hand prostheses, namely, powered digits, have modestly progressed so far, and very few clinical solutions are available today. Here, I present a mechanical architecture, an alternative to state-of-the-art solutions, which exploits a high efficiency. During this research internship, I will design and control a simple, but robust, 3D printed finger designed to be used for partial hand amputees or integrated into a prosthetic hand. By using CAD software and the 3D printer available at the University laboratory, many different design criteria for finger prosthesis will be. After fabrication, the finger will have a motor inside which will be controlled using an electronic circuit that measures and analyses the activity of muscles. We anticipate that with this finger a hand prosthesis with a total cost below £100 can be produced in the future.

Funding source: Newcastle University  
Supervisor: Dr Kianoush Nazarpour
Ann Kathryn Waschko  
*MA Cross-Cultural Communication*  
To investigate and find correlation between the goals and outcomes of all participants in a short-term study abroad program in Granada, Spain.

The rapid increase in the popularity of study abroad is leaving researchers and institutions alike in search of valuable data on what it takes to create an experience that is meaningful for students in myriad ways, such as academic achievement, intercultural understanding, and personal growth. Research into the study abroad environment in the past has included analysis of blogs written by students (e.g. Lee 2012, Bell 2016), but observation in the field will provide insight that is more connected to events as they occur naturally. Furthermore, there has been a lack of research consideration for all participants (i.e. not only students but also faculty from both home and local institutions as well as homestay families, guides, etc.) who are involved in the study abroad experience. The students, faculty, and other local associates are all responsible for contributing to this potential success in equal measure through their respective roles as program participants. Amadasi and Holliday suggest “small culture formation on the go” as the sphere in which interactants draw from their own personal trajectories as well as larger notions of culture in order to negotiate intercultural experiences (2017:3). Thus the short-term study abroad environment is a rich opportunity to explore how participants create and develop a ’small culture’ to achieve their goals.

**Funding source:** Newcastle University Expeditions Committee  
**Supervisor:** Dr Alan Firth

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Marco Romeo Pitone  
*PhD Candidate in Archaeology, School of History, Classics and Archaeology*

Victoria A. L. Lucas  
*PhD Candidate in Archaeology, School of History, Classics and Archaeology*

Kypros Kyprianou  
*MA Student in Digital Creative Practice and Film Practice, Culture Lab*

Katie Oswell  
*MA Student in Digital Creative Practice and Film Practice, Culture Lab*

Jasmine Padgett  
*MA Student Digital Creative Practice and Film Practice, Culture Lab*

Alicia H. Sawyer  
*PhD Candidate in Archaeology, School of History, Classics and Archaeology*

Amber S. Roy  
*PhD Candidate in Archaeology, School of History, Classics and Archaeology*

Violeta Tsenova  
*PhD Candidate in Digital Humanities, School of History, Classics and Archaeology*

Experimental Bronze Age Copper Smiting: a tool for research and outreach

Experimental archaeology uses experimental simulation and reproduction of archaeological processes (e.g. the production of stone tools, the working of a metallurgical furnace or the building of a roundhouse), to develop and test hypotheses drawn from the interpretation of the archaeological record.

This project involved UG, MA students and members of the public into a successful copper smelting experiment on-field (based on a PhD project in Archaeology at Newcastle University) reproducing the metallurgical technology used in Cyprus during the Bronze Age. The project contributed to disseminate research outside academia and to bridge Newcastle University with its local areas. The experiments were hosted at Jarrow Hall Anglo-Saxon Farm, Village and Bede Museum.

The entire experimental process has been video-recorded and archived as documentation, and the same material has been used by a team of MA students from the Culture Lab to create a documentary on Experimental Archaeology for the wide public.

**Funding source:** NUHRI Challenge Labs  
**Supervisor:** Dr Chloe Duckworth
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**Devaditya Agnihotri**
*BA (Hons) Politics*

Gender, the military and the media in India: gendered framings of the first woman fighter pilot.

Globally, women in the military are breaking through to ranks previously off limit to them. As these women navigate roles in the masculine sphere of the military, this has also sparked increasing media attention. From the first women to graduate from Marine training in the US, to the first woman to command a submarine in the UK. The media has a key role to play in interpreting these events for wider consumption. Much of this coverage has been gendered, focusing on the personal lives of these women and their deviance from expected feminine norms. Yet, while much scholarship has emerged on gender and the military, little attention has been paid to the role of the media in shaping gender narratives. This project, therefore, makes an important contribution, through analysing portrayals of the first female fighter pilots in the Afghan Air Force who qualified in May 2018.

**Funding source: Newcastle University**
**Supervisor: Dr Katharine. A. M. Wright**

**Nishaal Ajmera**
*BSc (Hons) Biomedical Sciences*

Vulnerability of interneuron populations in the cerebral cortex of a mouse model of Lewy Body Dementia

Lewy Body dementia is a common condition associated with mutations in a protein called α-synuclein. We are studying the effects of mutant α-synuclein on nerve cells in a genetically engineered mouse that expresses the mutant protein in its brain. We have evidence that in the cerebral cortex a type of nerve cell called an interneuron, crucial to cognitive function, may be affected, and that mutant α-synuclein may affect energy producing mitochondria causing stress to the interneurons as they require large amounts of energy to function. This project will identify interneurons in thin slices of brain from mutant and control mice, and see if these neurons are fewer in number older mutant mice, and/or show signs of oxidative stress in both young and old mutant mice.

**Funding source: Anatomical Society**
**Supervisors: Dr Gavin Clowry and Dr Fiona LeBeau**

**Akinola Akindele**
*MPharm Pharmacy*

The development of potential allosteric inhibitors for HIV-1 integrase

The aim of this project is to synthesise compounds that will act as inhibitors for HIV-1 integrase. It was discovered that this enzyme is what enables the virus to integrate its genetic material into the DNA of host cells. In the lab we will be synthesising and analysing a range of compounds which have already been tested via computer simulation as possible inhibitors for HIV integrase.

**Funding source: Newcastle University**
**Supervisor: Dr Mark Ashton**

**Honyfer Amancio**
*BE (Hons) Chemical Engineering*

Physics of Liquid Coiling Instability

Most people are familiar with the phenomenon of a viscous (or “thick”) liquid “twisting” once it hits a hard surface, such as what happens when honey/syrup starts to coil when we put it on pancakes/bread (Fig. 1). This phenomenon has long been observed and studied. However, a variation of this phenomena, when the viscous liquid does not hit a hard surface, such as water, has not yet been studied. This research project aims to study this occurrence and how this “twisting” effect changes under different conditions. A special set-up will be made wherein the viscous fluid continuously falls into a liquid bath. A high-speed camera will also be used to visualize/characterize the experiments, especially when conditions vary. Finally, based on the knowledge gained from this research project, practical engineering applications will be proposed.

**Funded by: Newcastle University**
**Supervisors: Dr Steven Wang and Dr Vladmir Zivkovic**
Cezar Nicolae Barbu  
BSc (Hons) Physiological Sciences  
Targeting the non-canonical NF-B pathway in glioblastoma

My project is based on a protein complex called NF-kB. Specifically, it involves the role of the less-studied non-canonical NF-kB pathway in GBM (glioblastoma multiforme), a type of brain cancer. The non-canonical NF-kB pathway is activated by a protein called IKK-alpha, which is activated by NIK (NF-kB inducing kinase). Studies have identified mechanisms by which the non-canonical NF-kB pathway can promote growth and proliferation of GBM. Prof. Perkins’ collaborators have recently produced a series of novel drugs, NIK and IKK-alpha inhibitors, that have therapeutic potential for the treatment of cancer. The aim of this project will be to investigate the effect of these drugs on GBM cell lines. Properties such as invasiveness and proliferation will be analysed to assess their therapeutic potential alone, as well as in combination with other already established drugs.

Funding source: Newcastle University  
Supervisor: Prof Neil Perkins

Zoe Bell  
MPhys Physics with Hons  
Examining the role of exosomes in the spread of bone cancer

Exosomes are signalling vesicles which are ejected in high numbers by cancer cells. A hypothesis with increasing evidence is that cancer cells send out signals to prepare distant sites before they go out and colonise these sites during the process called metastasis. It is thought that it is the exosomes that go out first and prepare the distant site for colonisation. In this project, we will look at the role of exosomes in primary bone cancer (chondrosarcoma). It will involve isolating exosomes, which are small lipid vesicles from cancer cells, and looking at whether these exosomes can encourage cancer cell migration. This will be tested using an impedance based invasion chamber to mimic how cells migrate through tissue.

Funded by: Newcastle University  
Supervisor: Dr Daniel Frankel

Farzaan Bhandari  
MBBS  
Development and evaluation of an anatomy education MOOC in observational drawing

Integrating innovative strategies for anatomy learning and teaching into medical curricula can enhance student learning and satisfaction, while optimising factors like cost and resources of modern anatomy education. Observe-Reflect-Draw-Edit-Repeat (ORDER) is a novel cyclical artistic process which can be integrated into techniques for drawing 3D objects onto 2D surfaces using multi-sensory observation including touch, giving rise to the combined ORDER Touch process. ORDER is shown to be more effective when delivered as an online tutorial, by eliminating the limitations of its delivery in a practical-based learning environment. So, this research project aims to evaluate the extent to which an online course incorporating ORDER Touch improves the understanding of 3D anatomy and enhances student and educator experience.

Funding source: Newcastle University  
Supervisor: Dr Iain Keenan

Emily Birch  
BA (Hons) Architecture  
Active Origami

Lab-based experiments will focus on accurate placement of Bacillus spore actuators, displacement and response rates to optimise hygromorphic actuator ribbon application in ‘active origami’.

This project investigates using Bacillus spore actuators to change fold angles in origami to create an ‘active origami’ prototype for architecture.

Some bacterial cells produce spores in hostile environments which revert to viable bacteria in favourable conditions. The two forms (spore/viable) have different dimensions, and for Bacillus subtilis, are adopted dependent upon environmental humidity.

Since the spores expand in the presence of moisture, they can be combined in a two-layered material with a latex substrate to produce a hygromorphic composite, which deforms in the presence of moisture due to the different rates of expansion of the two layers. This deformation could potentially open or close the angle of fold in origami structures if the hygromorphic Bacillus spore actuator was applied as a ribbon along the folds.

Funding Source: Newcastle University  
Supervisor: Dr Martyn Dade-Robertson
Research Scholarships and Expeditions 2018

**Phumrapee Boonklang**  
*BSc (Hons) Biomedical Sciences*  
The Role of Sphingosine-1-Phosphate in Endothelial Integrity

Transplantation is the most effective therapy for treating organ failure. Despite its success it is limited by the number of donor organs available relative to the number of patients on the waiting list. The ever increasing number of patients on transplant waiting lists has put a greater emphasis on the preservation of organ function and increased use of donor organs which would previously have been considered too compromised for clinical use. Hence, there is urgent need to evaluate novel approaches that increase the availability of suitable donor organs and overcome early inflammation. In this project using a pre-optimised cell culture system we will examine the potential of Lipid molecule (S1P) and related drugs to maintain the integrity of blood vessels. This study may identify drugs which can be used in perfusion of organs before transplantation to restore the integrity of blood vessels and therefore limit the risk of early injury.

**Funding source:** Wellcome Trust  
**Supervisor:** Prof Simi Ali

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**Rebecca Brabin**  
*BSc (Hons) Chemistry w Medicinal Chemistry*  
Towards enzymatic production of conducting polymer-DNA hybrid nanowires

DNA is often ascribed potential for use in molecular electronics. However the electron transport properties of native dsDNA are not sufficient for electronics. Therefore it has been necessary to add functionality, usually at the polymer strand level through templating techniques, with metal, semiconductor or conducting polymer materials. This project will investigate the modification of the building blocks of DNA, the nucleosides, with units of conducting polymers in order to incorporate them into a complexes which self-assemble by utilising the recognition properties of the double helix.

**Funded by:** Newcastle University  
**Supervisor:** Dr Andrew R Pike

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**Summer Browne**  
*MBlol Biology (Cell & Molecular)*  
Developing accurate markers for environmental DNA (eDNA) surveys of UK river invertebrates of ecological importance

Currently, the Environment Agency (EA) and other government and non-governmental organisations conduct surveys of freshwater invertebrates as a tool to monitor water quality and assess environmental impacts and pollution events. Routine monitoring of the entire range of chemical pollutants would be prohibitively expensive, but river invertebrate communities provide an indicator of water quality from presence and absence of species with known tolerances to pollutants. Manual identification of river invertebrate communities is time-consuming and requires significant technical expertise. The use of DNA markers offers a potentially rapid analysis, with costs of sequencing now low enough to be more cost-effective. However, many UK river invertebrate species have not been sequenced and/or accurately identified. Many cryptic species have also been identified using molecular analysis that offer more refined analysis of water quality, but also question the existing taxonomy. This study will develop molecular markers for the Baetis rhodani complex of British mayflies using samples from across Northumberland.

**Funded by:** Newcastle University  
**Supervisor:** Prof John Bythell

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**Louise Bulman**  
*BSc (Hons) Speech and Language Sciences*  
Using longitudinal data to evaluate the feasibility of a minimal dataset for diagnosing speech sound disorder in children age 3-6 years

The Diagnostic Evaluation of Articulation and Phonology (DEAP) is a standardised assessment of speech sounds. The screening subtest (DEAP Screen) is recommended as the starting point of the test, taking 10-15 minutes. This project aims to evaluate if the DEAP Screen speech sample of ten words, comprising eight vowels and 26 consonants, is adequate as a minimum dataset of speech sounds to diagnose speech sound disorder in young children. A minimum dataset would be of great value to speech and language therapists. Longitudinal data from 128 children (3-4 years old at first assessment) assessed on the DEAP Screen six times over a two year period, will be analysed in relation to other information about the children’s speech to evaluate how accurately their speech development can be assessed. As many as possible of the original 128 children will have their speech reassessed to evaluate stability of speech status over time.

**Funding source:** Newcastle University  
**Supervisor:** Dr Helen Stringer
Abbie Carr  
*MChem Chemistry with Medicinal Chemistry*  
Development of a New “Advanced Medicinal Chemistry” Laboratory Course for Stage 3 Undergraduate Students.

My project involved development of a new 5-week laboratory course which is a part of the “Advanced Medicinal Chemistry” module for Stage 3 Chemistry students. Besides finding appropriate experiments to match the lecture material it was important to consider such aspects as their cost, reproducibility and time-scale.

I have investigated various methods of synthesis of antibiotic and antifungal drugs from which I have selected 3 experiments to be used in the laboratory course: synthesis of ethyl nalidixate (backbone to many different drugs), synthesis of penicillin derivative (well-known antibiotic), and synthesis of chalcone derivatives (also known to demonstrate antibacterial activity). Products of the experiments were characterized using various analytical techniques such as infrared and nuclear magnetic spectroscopy, mass spectrometry and melting point measurement. To highlight the medicinal aspect of the module the synthesised drugs were later subjected to bioassay to test their antibiotic or antifungal activity.

**Funding source:** Newcastle University  
**Supervisor:** Dr Zuleykha McMillan

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Alexandra Charlton, Rachel Potter and Hannah Marmaro  
*BA (Hons) English Literature and History*  
LGBT History of Newcastle

We created an online exhibition, using Omeka.net, showcasing LGBT individuals and leisure spaces that have contributed significantly to the cultural heritage of Newcastle. We hoped to create an awareness of the LGBT history of the region and engage public audiences through an interactive format. Our site, lgbthistoryofnewcastle.omeka.net, includes various exhibitions relating to our research around key LGBT individuals and spaces. Exhibitions range from the ‘Ethel Williams Archival Collection’ which displays archival material relating to Newcastle’s own suffragist, doctor, liberal politician and lesbian, to biographical information on eighteenth century transgender literary figure, Jane Gomeldon, and an interactive map of Newcastle’s 1980s LGBT leisure spaces. Our project covers a broad time period from the sixteenth century to the 1980s in order to show how attitudes toward sexuality have changed across time.

**Funding source:** NUHR! Challenge Labs  
**Supervisor:** Dr Stacy Gillis

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Emma Carter  
*MBiol Biology*  
The physiology of epithelial sodium ion channels

Epithelial sodium channels (ENaC) mediate active reabsorption of sodium across epithelia apical membranes, essential for body salt maintenance and water homeostasis. There are two isoforms of ENaC’s, differing in one subunit. The South African clawed frog (Xenopus laevis) was used to study the physiology and molecular regulation of these isoforms, where it was found that one form was more sensitive to extracellular sodium concentration and extracellular pH than the other. To follow up this research we are interested in whether sensitivity to extracellular chloride concentration also differs between isoforms. This will be tested on Xenopus laevis oocytes, by expressing one of the ENaC isoforms in the plasma membrane, where the activity in response to chloride will then be measured. This will allow us to see any differences in response to extracellular chloride, and to determine if the activity of the isoforms depends on extracellular chloride.

**Funding source:** Psychological Society  
**Supervisor:** Dr Mike Althaus

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Chee Chzi Ching  
*MBBS (NUMed Malaysia)*  
Reviewing the evidence base for ‘total communication’ therapies for people with aphasia.

Aphasia is a communication difficulty, often resulting from stroke. It can affect an individual’s ability to speak, write, understand and read. When spoken production is severely affected, a therapy approach called “total communication” is often used. This involves encouraging the use of gesture, drawing and writing. Whilst there is an evidence base for writing therapies, the literature on how to treat gesture and drawing is more limited. My project has given me the opportunity to carry out a literature research on studies targeting “total communication”. The studies were then summarised using an existing template which allowed detailed consideration of participants, therapy approach and outcome. This short review has urged the need of a more comprehensive systematic review since there are variation in the results of different studies. Future studies on “total communication” should consider recruiting a larger population group to increase reliability of results.

**Funding source:** Newcastle University  
**Supervisors:** Dr Julie Morris and Dr Janet Webster
Chui Leng Cho
MBBS (NUMed Malaysia)
The Requirement for Primary Cilia in Heart Development: Cre-Lox Based Analysis of Cardiac Progenitor Lineages

Malformations of the heart affect almost 1 in 40 people. The cause of most congenital heart disease (CHD) is still unknown, but genetic and environmental causes are presumed to be important. The cilia is a finger like projection found on most cells, important for signalling and sensing. Recently cilia related genes been suggested to be an important cause of CHD. We are investigating this proposal by genetically removing the cillum from different cell types that form the heart using genetically modified mice and determining what heart malformations occur. During this summer project, the student will join a laboratory of 12 researchers investigating this problem. They will be taught how to perform basic molecular biological techniques such as PCR and fluorescent immunohistochemistry. With support the student will work towards producing a figure for inclusion in publication, whilst learning a broad range of transferable laboratory and presentation skills.

Funding source: Newcastle University
Supervisors: Dr Bill Chaudhry and Prof Deborah Henderson

Cheng Tong Chuah
MBBS (NUMed Malaysia)
The impact of visual display refresh rate on image quality and viewer comfort

Refresh rate is defined as the number of times an image is displayed by a hardware in one second. The research aims to investigate how the visual display refresh rate affect the image quality and also viewer’s comfort. Healthy participants scanned for spelling errors in scrolling text, while wearing an eye tracker which monitor gaze and blink rate. After finishing the task, they were asked to answer questions regarding visual fatigue, preference and also image quality. We compared the performance and subjective report for four different refresh rates: 30Hz, 60Hz, 120Hz, and 240Hz. The comparisons made between the refresh rates were pairwise. Findings from the research showed that the comfort level and image quality had steady increments with higher refresh rates. The refresh rates had no effect on the performance and blink rate. There was a prominent artefact when viewing a moving content under low refresh rate.

Funding source: Newcastle University
Supervisors: Prof Jenny Read, Christos Kaspiris-Rousellis and Maydel Fernandez Alonso

Daniel Cockling
BA (Hons) Archaeology
The Seat of Power: An investigation of thrones.

Thrones have long been a symbol of power and authority, used by both secular and religious leaders to project their high status on those in lower social classes since at least the Roman period. The purpose of this research was to determine how thrones have developed into the form recognised today; where they originated and how they continue to be used.

This project involved creating 20 case studies from the past 2000 years, each representative of types of throne used in each period. As rulers from popes and kings to bishops and lords used thrones, they were an object that saw widespread use throughout Europe, but little has been cohesively been written on them. I mainly conducted desk-based research on the historical context to their use, but I also visited a number of thrones that still exist - both in use and as museum objects.

Funding source: Newcastle University
Supervisor: Dr Mark Jackson

John Cornilious
BSc Biomedical Sciences (NUMed 2 +1)
Comparing the virulence of S. aureus Mu50Ω1 and Mu50Ω2 in a C. elegans model

Antibiotic resistant bacterial strains continue to rise and add onto the burdens of public health. It is important to identify and rank such strains according to virulence. This will enable health industry workers to prioritise deliverance of interventions. In the present study, two recently isolated vancomycin-susceptible MRSA strains, Mu50Ω1 and Mu50Ω2, had their virulence compared in survival assays. In the assays, C. Elegans worms were fed either Mu50Ω1 or Mu50Ω2. The survival rate of the worms was measured and the findings suggested that Mu50Ω1 was more virulent than Mu50Ω2. This is the first ever investigation into these strains and therefore this study provides a starting point for further molecular investigations into the reasons for differences in virulence of the two strains. Other MRSA strains can be tested using similar assays to provide preliminary virulence comparisons as well.

Funded by: NUMed Malaysia
Supervisor: Dr A Kong
Imogen Creswell  
MPhys Physics with Hons  
Stellar models for hydrodynamic simulations

During a star’s lifetime its properties change depending on its age and mass: this is what’s known as stellar evolution. Researchers simulate stellar evolution using computers, as it’s not possible for us to observe the full evolution in our own lifetime. These simulations allow for comparison of properties between stars, which furthers understanding of Astrophysics. Comparing the properties of stars for research purposes is difficult due to the large variety and amount of data available. In this project I am going to make data more accessible by producing a data grid of these properties. I will do this using a computer program called Modules for Experiments in Stellar Astrophysics (MESA) to produce models of different stars, varying in density, temperature, composition as well as mass and age.

Funded by: Newcastle University  
Supervisor: Tamara Rogers

Madeleine Cromack  
BA (Hons) Archaeology  
The Fall of Little Germany: The Effect of The First World War on German Communities in Bradford

Bradford’s history has long been tied to its German community. These connections helped shape the nature of the city both in its material culture and economically. Changing attitudes and open hostility towards Germans in Britain during the First World War fundamentally altered these relationships which had previously had an important impact on Bradford’s culture. This project aimed to find out how and to what extent the German character of Bradford changed during the war. Through the use of census data, newspaper archives, and directories, the impact to Bradford’s culture has been examined. Visits to the present-day city have looked for remnants of a Germanic influence today. This study has found that the visible German culture in Bradford declined during the First World War. A disappearance of the German community and German owned businesses, anglicisation of names, and removal of overt Germanic aspects contributed to a decrease in Bradford’s visible German character.

Funding source: Newcastle University  
Supervisor: Dr Caron Newman

Nathan Davidson  
MChem (Hons) Chemistry  
The role of p52/p100 NF-κB2 Serine 222 phosphorylation in senescence and cancer

The development of e.g. new drugs and electronic materials is frequently dependent on the chemist’s skill in discovering new molecules. One of the aims of the chemist is to synthesise entirely new classes of molecule which possess unique and exploitable properties. We aim to develop a fundamentally new class of highly reactive molecule which is stabilised by a completely new type of interaction. We will investigate new members of this class of compound, in order that we may better understand their unique properties. This will represent a significant advance in the field with the potential to substantially alter current practice.

Funding source: Royal Society of Chemistry  
Supervisor: Prof Keith Izod

Adam Duxfield  
BSc (Hons) Biomedical Sciences  
Reactivity of Main Group Carbene Analogues

My project was based on the NF-κB2 (p100/p52) transcription factor, an effector of the non-canonical NF-kB pathway, an important regulator of the immune system that becomes activated in many forms of cancer. I investigated the role of phosphorylation, the addition of a phosphate group, at the amino acid serine 222 (S222) of p100/p52. Phosphorylation at this site affects p52 DNA binding and p52 dependant cell growth. I also investigated the kinase (enzyme) responsible for p100/p52 S222 phosphorylation by using a series of different kinase inhibitors in the U2OS cancer cell line. Furthermore, I also investigated p100/p52 S222 phosphorylation using protein extracts provided by a collaborating laboratory from patients with Chronic Lymphocytic Leukemia (CLL). My data demonstrated that candidate kinases, ERK1/2, do not phosphorylate p100/p52 at S222. I also confirmed that p100/p52 S222 phosphorylation changes as cells from CLL patients start to proliferate suggesting an important regulatory role in this disease.

Funding source: Newcastle University  
Supervisor: Prof Neil Perkins
Research Scholarships and Expeditions 2018

Helen Ette  
BA (Hons) History  

As 2018 marks the centenary of the Representation of the People Act, the history of women in British politics is of increased interest. I approach this topic from a novel perspective: considering the role of women in shaping overseas development policy. The Department for International Development has had notable female influence, eight women heading the department since 1964. Gender also influenced the work of DFID. The department recognises the gendered experience in developing countries with policies concerning exclusively women and girls in developing countries, and most recently an attempt to tackle the gendered abuses of the aid sector which the sexploitation scandal highlighted. I consider whether the overseas ministry provided a gateway for women to increase their political agency, and the extent to which this agency has led to the gendering of development policy. Both archival research and interviews provide perspective in understanding how the national issue of women’s rights became internationalised.

Funding source: Newcastle University  
Supervisor: Dr Martin Farr

Muaz Bin Ezhar  
MBBS (NUMed Malaysia)  
Effect of transcranial direct current stimulation (tDCS) on dual task walking and cortical activity: A feasibility study

Walking with additional tasks requires a dynamic interaction between cortical regions. This is more challenging and affects gait of older people. It is believed that a weak direct current on the motor cortical area may enhance its neuronal function. tDSC treatment is non-painful and involves placing small sponges on top of the head and on the forehead. This project was carried out to explore the feasibility of using tDCS together with fNIRS. Functional Near-Infrared Spectroscopy (fNIRS) is a device used to study the cortical activity based on oxygenation level in different conditions. The study was also conducted to investigate changes in dual task walking after the stimulation of direct current based on difference in cortical activity. From this study, we concluded that it is feasible to use tDCS and fNIRS at the same time, tested with young participants. Future study is planned to include healthy older and younger adults.

Funding source: Newcastle University  
Supervisor: Dr Annette Pantall

Libby Finnigan  
Bsc (Hons) Biomedical Sciences  
Is the loss of normal astroglial function implicated in cognitive decline in Alzheimer’s disease?

Confirmation of Alzheimer’s disease (AD) is made by the microscopic examination of post-mortem brain tissue of which the amount and location of the toxic protein aggregates tau and amyloid-beta. It is still unknown why some people have a fast conversion to AD, avoiding the mid cognitive impairment phase. One important factor in the progression of AD is astrocytes. The job of reactive astrocytes is to repair and recruit other inflammatory cells to fight the underlying disease. However, reactive astrocytes release numerous inflammatory chemicals that lead to an increase in brain inflammation and have been linked to an exacerbation of AD. Using post-mortem human brain tissue from donors, we aim to microscopically measure the amount of AD pathology as well as the amount of reactive astrocytes in many regions of the brain. This will tell us if the amount of AD pathology and reactive astrocytes are different between the two groups.

Funding source: Alzheimer’s Society Undergraduate Bursary  
Supervisor: Dr Kirsty McAleese

Louis Francis  
PhD Film by Practice  
Small Spaces documentary project

The UK has the smallest sized living spaces in all of Europe, and habitable space is continuing to shrink. “Rabbit-hutch” Britain has some individuals inhabiting floor spaces as small as 12ft by 12ft – barely larger than a prison cell.

This research project has conducted film research across the UK in order to explore participants’ experiences of living in small spaces, asking them how they have adapted to their environment, and how they think it affects their well-being. The film examines whether these individuals’ living needs are being met by their accommodation, and documents their living environments. In response to the film research, a workbook has been produced, responding to the results of the film as a visual record.

Funding source: NUHRI Challenge Labs  
Supervisor: Prof Roger Burrows
**Caitlin Gadsby**
**BSc (Hons) Biology**
Characterisation of a novel bacteria in the genus Streptomyces

A bacteria isolated from the Spanish Tabernas desert was found to have a low genetic similarity to other bacteria, suggesting it was a newly discovered species. The genetics also revealed that it was likely to be a Streptomyces, a genus of bacteria known for the production of antibacterial compounds that constitute the majority of antibiotics. The discovery of new Streptomyces is therefore becoming increasingly important in the fight against antibiotic resistant bacteria.

This research was aimed at characterising the isolate, known as AF1, using morphological, physiological and biochemical properties. Morphology includes the appearance of the bacteria and its cellular characteristics, physiology involves the ability to grow under specific conditions (differing temperatures, pHs, substrates etc.) and biochemistry applies to the cellular reactions, components and enzymes. This allows the understanding of similarities and differences between a novel species and those it is believed to be related to, aiding in the taxonomic positioning.

**Funded by: Newcastle University**
**Supervisor: Dr Maria del Carmen Montero-Calasanz**

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**India Gerritsen**
**BA Combined Honours**
Abolitionist Sentiment in the North East

Historians have discussed British responses to the American Civil War 1861-65 and American slavery, yet specific research on the North East’s response is minimal. The current narrative regarding the North East and slavery focuses overwhelmingly on the 1830s, and the visits of Olaudah Equino, Ida B Wells, Frederick Douglass, and later, Martin Luther King. My research proves there is more to this narrative. From 1830-1865, the North East established anti-slavery groups, meetings, literature and American guest-speakers through trans-Atlantic contact. The war featured heavily in newspapers. Opinions were complex, influenced by economic and religious factors. Support for the American North and American South differed over time. My findings disprove the argument that working and upper-class individuals supported opposing sides. Interestingly, many supported the South and claimed to be against slavery simultaneously. Post-war, the North East experienced Civil War-based literature, film and theatre up to 1970. Initially these had a bias towards the North, but later became more South-siding.

**Funding source: Newcastle University**
**Supervisor: Prof Susan-Mary Grant**

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**Adam Gardner**
**MPharm Pharmacy**
The identification and synthesis of novel allosteric integrase inhibitors

This research is being carried out to enhance the lives of those with HIV/AIDS. The study involves developing a drug that can enter the body and prevent the action of a specific enzyme within the virus. Inhibition of the enzyme will result in the virus being unable to replicate. Although medications in the past have been developed that can stop viral replication this drug will be unique since the bespoke mode of action will prevent any virus in the body forming a resistance to the medication. The drug will therefore be effective 100% of the time. A safe and reliable medication, to be taken every day, with the aim of prevention as treatment reducing the numbers affected by HIV/AIDS.

**Funding source: Newcastle University**
**Supervisor: Dr Mark Ashton**

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**Hannah Grice**
**BSc (Hons) Biomedical Genetics**
Investigation of epigenetic regulation of PM20D1 in susceptibility to neuroblastoma

Neuroblastoma is a cancer that occurs primarily in children under 5. However the causes of this disease are largely unknown. We have recently found evidence that a gene called PM20D1 may be linked to susceptibility of children to developing neuroblastoma. PM20D1 is an unusual gene, because it is inherited in two different states, called epitypes. Our initial analysis suggested that children that inherit the rarer epitype from both their father and mother are more likely to develop neuroblastoma. This project will have two aims. The first will be to confirm the link between neuroblastoma susceptibility and PM20D1. This will be done by analysis the PM20D1 epitypes in blood samples (i.e. healthy, non-cancer cells) to confirm that most neuroblastoma patients have two copies of the rarer PM20D1 epitype. Secondly, we believe that this rarer epitype actually switches the gene off and we will test this the using a technique called qRT-PCR.

**Funding source: Genetics Society**
**Supervisor: Dr Gordon Strathdee**
Research Scholarships and Expeditions 2018

**Timothy Hajda**

**BSc (Hons) Surveying and Mapping Science**

Assessment of habitat associations of threatened upland wading birds using remote sensing and GIS.

Habitat loss due to land management changes, overgrazing and afforestation is suspected to be one of the key threats to nesting wading birds in the U.K. Knowledge of a species’ habitat requirements is essential for identifying areas vital for its survival. This project aimed to explore the potential for using multispectral satellite imagery and GIS datasets to assess habitat associations of six upland wader species. Study sites were selected within the North Pennines AONB, a region particularly crucial for breeding waders. The sites were surveyed at the end of June to record the number of breeding waders present and to collect soil moisture measurements. Whilst no significant correlations were found when analysing the bird census data and the habitat variables in question, the project provided a useful baseline dataset and highlighted several important considerations for future research and conservation measures for breeding waders in the North Pennines.

**Funded by: Newcastle University**

**Supervisor: Magdalena Smigaj**

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**Kiera Hardy**

**MBBS**

Retrospective study into T1 (early stage) rectal cancer treatments and associated oncological outcomes.

Rectal cancer has an incidence of 14,000 cases per year in the UK, with early stage disease accounting for 17% of patients. Traditionally, treatment has been extensive surgical removal of the tumour. However, newer endoscopic treatments may be better for patient outcomes.

The research project involved looking through the notes of approximately 500 patients in the North East who underwent either surgical or endoscopic treatment for T1 rectal cancers. The aim of the project was to establish variations in treatments, and the associated outcomes of each treatment. Specifically, the reoccurrence of cancer with endoscopic treatments, which involves removal of only the isolated cancer lesion, and more extensive surgical treatments such as removal of the rectum. The results of the research will be used to establish a best practice guideline for future patient management in colorectal surgery.

**Funding source: Newcastle University**

**Supervisors: Mr Fadlo Shaban & Mr Peter Coyne**

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**Ciara Henderson**

**BA (Hons) Politics**

The Role of Non-Profit Organizations in Bridging Ethnic Divides Through Integrated Education: Northern Ireland

This research project will examine the effectiveness of non-governmental organizations in creating and sustaining integrated primary and post-primary education in Northern Ireland as a means of bridging communal divisions between the Protestant majority and Catholic minority. To this end, the project will examine the role of Northern Ireland’s education system—a system which is effectively divided along communal lines—in sustaining social and political divisions. NGOs such as the Northern Irish Council for Integrated Education have played a crucial role in navigating religious education in integrated schools, facilitating a schools’ transformation into integrated status and the growth of existing integrated schools. It will then consider how these challenges, put forth by opposing governmental and religious bodies, impede the growth of the integrated education sector which attempts to foster peaceful interaction and social renewal. Finally, it will examine how NGOs can continue to further integrated education in a divided Northern Ireland.

**Funding source: Newcastle University**

**Supervisors: Dr Ian O’Flynn**

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**Thomas Hoather**

**MBBS**

Fits and Reduced Consciousness with “Not-So-Legal Highs”

Introduction: The rates of fits and reduced consciousness in patients exposed to Synthetic Cannabinoid Receptor Agonists (SCRAs) and Synthetic Cathinones (SCs) are unknown.

Methods: The Identification of Novel psychoActives (IONA) study database contains demographic, clinical and analytical details of adults presenting to UK emergency departments with severe toxicity following suspected use of New Recreational Drugs (NRDs). We analysed the database for the rates of fits and reduced consciousness in those with SCRA and SC exposure.

Results: Patients with SCRA exposure had 8.9% more fits than other IONA patients and 17.4% more reduced consciousness than other NRD users. SC exposure was associated with 20.1% less reduced consciousness than exposure to other NRDs and 21.6% less than other IONA patients, but there was no difference in the rate of fits.

Conclusions: Clinicians should be aware of these patterns of toxicity to guide diagnosis and treatment, when assessing adults with suspected NRD exposure.

**Funding source: Newcastle University**

**Supervisor: Dr Simon Hill**
Francis Howe
BA (Hons) Ancient History and Archaeology
The functionality of weaponry: a comparison between Tongva Indians from the west coast of North America and the Mayan peoples of the Yucatan Peninsula, Southern Mexico.

The primary aim of this research is to establish that the functionality of weapons does not solely lay in warring and conflict, but rather takes on multipurpose functions such as for rituals; as tools; and as symbols of status. The Tongva Indians from present day Los Angeles and the Mayan peoples of the Yucatan Peninsula have been chosen for this study due to their unique positioning in North and Central America, and the diversities in the way they lived within complex civilisations. Both indigenous communities displayed high complexity towards the way in which they approached what we would now consider a weapon. The research will be carried out both on site and through literary sources. The use of archaeological scientific analysis, combined with photographic evidence and museum visits, will form the basis of the project. What this research would come to understand is that our modern interpretations of weapons do not necessarily align with this ancient narrative.

Funding source: Newcastle University
Supervisor: Dr Andrea Dolfini

Joshua Howlett, Louis Lorenzo Holland Bonnett, Thomas Croom & Cooper Saint Robson
BA (Hons) History/BA Combined Honours/ BSc (Hons) Mathematics
An interdisciplinary project on the study of the effects of disease and maltreatment on the American peoples after the arrival of Europeans to the Americas after 1492 running to the year 1800

Our project has been researching the effects of disease and the maltreatment of the Spanish on the indigenous communities of North America, Central America, and Southern America in the period between the years 1492 and 1800. Each member of the group was assigned a specific role and specific area based upon their discipline. We also looked at the impact of disease and the actions of the colonists on the societies and lives of the Indios as part of the project. Overall, we found that the American indigenous suffered a demographic collapse of cataclysmic proportions across the Americas as a result of disease in particular but also because of slavery, agricultural disruption and other causes also. Overall we feel as students beginning our third year of University we have learnt a great deal and the experience will be useful for our dissertation projects.

Funding Source: Newcastle University
Supervisors: Dr Philip Garrett, Prof Alastair Bonnett & Dr Andrew Baggaley
Tara Hunter  
BSc (Hons) Biomedical Sciences  
Investigating the localisation of clinical uropathogenic Escherichia coli strains to the tight junctions of bladder cells.

Urinary tract infections (UTIs), caused by bacteria infecting the bladder, are one of the most common bacterial infections with over 150 million cases reported annually. Uropathogenic Escherichia coli (UPEC) are the main cause of these UTIs and the standard treatment is antibiotics. However, the over prescription of antibiotics to treat UTIs has created antibiotic resistant UPEC strains, making UTIs difficult to treat. New therapeutics are required to work alongside or replace antibiotics, but before this can happen a better understanding of UTIs is needed. It has been shown that an UPEC strain isolated from an UTI patient localised to specialised regions - called tight junctions (TJ) - of bladder cells. This project used two UPEC strains isolated from two different UTI patients and engineered to fluoresce green, to explore whether these strains also localised to bladder cell TJs. Results showed that these UPEC strains did localise to the TJ regions, highlighting their importance in the infection process. These data also indicate that masking TJs could prevent bacterial attachment and infection, and therefore are potential therapeutic targets.

Funding sources: Microbiology Society & Newcastle University  
Supervisor: Dr Judith Hall

Shahdab Jahan  
BSc (Hons) Physiological Sciences  
The effects of flavoured electronic cigarette liquid on calcium signalling and ion transport function of airway epithelial cells.

E-cigarettes are becoming increasingly popular, especially among the youth, as a supposedly healthier alternative to traditional tobacco-based cigarettes. E-cigarettes deliver vapour generated by heating up e-liquid, which typically contains nicotine. It has been recently discovered that select flavours of e-liquid are toxic to cultured cells. As there has been little research done on the effects of e-liquid, we investigated the effects of e-liquid on the function of epithelial cells present in the lining of human airways, mainly focusing on calcium signalling. Calcium signalling is an important process that takes place in all cells to regulate many aspects of their function, and if not properly regulated could threaten human health. We looked at how the levels of calcium in the airway epithelial cells increased or decreased when exposed to e-liquid, and further investigated the source of this calcium.

Funding source: Newcastle University  
Supervisor: Dr Michael Gray

Eloise James  
MBBS  
Genome dynamics and phylogenetic tracking in paired diagnostic and relapsed neuroblastomas

My project, at the Northern Institute for Cancer Research, focused on neuroblastoma, a rare childhood cancer with a high mortality rate. High risk groups show 50% survival, and therefore research into genetics and treatment is pertinent. I extracted genetic material from 9 tumours at diagnosis and relapse, and analysed corresponding existing genetic data. The aim was to determine genetic changes occurring from diagnosis to relapse, to identify areas for research and inform risk stratification/treatment. Samples in the lab were extracted, and genetic analysis software/pipelines were used. I attended my supervisor’s hospital neuroblastoma clinic, where I met patients that had donated their tumours, which was invaluable. In reading literature regarding the disease and proposed pathophysiology of relapse, and comparing this each tumour’s genetic data, I was able to discuss and conclude my findings. I identified routes for further genetic exploration that may indicate atypical relapse, and this may hopefully inform future treatment.

Funding source: Newcastle University  
Supervisors: Prof Deborah A Tweddle & Dr Alem Gabriel
Dan Jobson  
*BSc (Hons) Biomedical Sciences*  
Biochemical and structural characterisation of CDK1/2-RingoA complexes and its possible role in cancer

The cell cycle enables a cell to divide, grow and develop. Enzymes known as cyclin dependent kinases (CDKs) and their activating partner known as cyclins regulate the cell cycle. These phosphorylate specific proteins at precise time intervals to organise the cell’s activities. Ringo/Speedy are a cyclin-like family of proteins with the founding member being RingoA/Speedy1. This activates CDK1 and CDK2 without the need for phosphorylation during meiosis (production of sex cells). A recently published research paper identified the enzyme complex crystal structure. It is also believed that these enzyme complexes increase in cases of cancer. So learning more about them might discover new anti-cancer treatment options.

I wanted to see if the enzyme activity changed with Ringo bound to CDK2 in different conditions. The next stage was to make crystals of Ringo-bound CDK2 complexes. The enzyme activity did appear to change and I managed to start setting-up crystal plate trials.

**Funding Source:** Newcastle University  
**Supervisor:** Prof Jane Endicott

Marima Kauser  
*BSc (Hons) Biomedical Sciences*  
Neuropathology in Dementia with Lewy Bodies

The Lewy body disease (LBD) spectrum consists of Parkinson’s disease (PD), Parkinson’s disease dementia (PDD), and dementia with Lewy bodies (DLB). LBD is the second most common form of neurodegenerative dementia. LBDs are characterised by the accumulation of a protein called alpha-synuclein and is often investigated by stains that show all alpha-synuclein. However, there are many types of alpha-synuclein and some types seem to be more toxic than others but this information may be overlooked in studies that just study all types of alpha-synuclein at once. Therefore, we have studied many different types of alpha-synuclein in post-mortem brain tissue and found one type that seems to be related to the symptoms experienced by patients and other lesions that occur in the brain in dementia. Identifying this type of alpha-synuclein may be important for identifying new ways to diagnose patients more accurately or as a target for new drugs in LBD.

**Funding source:** Newcastle Biomedical Research Centre  
**Supervisor:** Prof Mary Johnson

Megan Keates  
*BA (Hons) Ancient History & Archaeology*  
Discovering Hampton Gay: the landscape of a ruined manor house.

Discovering Hampton Gay was arranged as a response to a general understanding I had taken at my summer work of what people had of local heritage. There is little openness about privately owned heritage however much the general public is interested - this research scholarship was aimed at resolving this by the Manor site in particular. The final poster displays the development of the Parish area from prehistory to the postmedieval. This work was achieved with site visits, a series of aerial photography from the 1940s onwards, online archive research and using open-source methods like non-evasive LiDAR and map regression to achieve a wider understanding of the landscape meanwhile protecting the Scheduled Monuments. The key outcomes of this project were to draw this information out from distant and separated sources to provide a clearer understanding of the Site’s history and to make this accessible.

**Funding source:** Newcastle University  
**Supervisor:** Dr Caron Newman

Penelope Kempson  
*BA (Hons) Music*  
Birds in English Folk Music

This project aims to produce a performance about the bird lore of Britain in British traditional music which includes elements of folk song, research, mythology and legend, presented both as a physical performance and as a CD. The performance will take place in September in Newcastle, hopefully around the university, marketed as part of the thriving music scene in this city alongside the various lecture series presented by the university. I will present this work as a CD as it will incorporate some narrative work, and a CD also allows for sidenotes and sleevenotes to record the extra research and bibliography for the interested listener. Alongside this, I will produce a new collection of folk songs, including scores and recordings, which can be uploaded as a digital archive, leaving a lasting contribution to the world of folk music collection.

**Funding source:** Newcastle University  
**Supervisor:** Dr Bennett Hogg
Research Scholarships and Expeditions 2018

Jerry Tan Hai Kok
MBBS (NUMed Malaysia)
How does the Praying Mantis detect Motion in Depth?

The praying mantis has the remarkable ability to perceive the world in three dimensions and accomplishes this with a visual system much simpler than ours. This project investigates how mantids use looming (the apparent increase in size of an object as it approaches the viewer) to perceive the depth of moving objects. Simulated prey were animated using a combination of looming and optic flow stimuli then presented in a random order to a cohort of Sphodromantis Lineola. The mantids would strike when the prey, which were presented with an insect 3D cinema, appeared to be within its catch range. The mean number of strikes for each condition were then analysed to determine the specific visual cue(s) used to determine looming. The results suggested that the mantis perceives looming by detecting the motion of a luminance edge (the border between two areas of different light intensity).

Funding source: Newcastle University
Supervisors: Jenny Read and Vivek Nityananda

Gokul Krishnan
BSc (Hons) Biomedical Genetics with Professional Placement Year
High-Throughput Generation and Temperature Sensitivity Assessment of Yeast Mutant Libraries

The end of human chromosomes are complex structures that protect the chromosome from damage. Despite the protective role of these structures, the chromosome ends shorten over time. This is of particular relevance to cancer cell progression in which a cell that divides uncontrollably loses its chromosome end structure rapidly and the cells become inviable. Cancer cells, however, find alternative ways to protect their chromosome ends to remain viable. Using budding yeast as a model organism for uncontrolled cell division, we are looking to find new mechanisms by which cancer cells protect their chromosome ends and thereby continue to divide. This summer project successfully replicated part of previous research findings in this area of yeast genetics where critical genes already known to be involved in the maintenance of these chromosome ends are also identified in this project. Further experimentation is needed however to elucidate further the genetic interactions between these genes.

Funding source: BBSRC
Supervisor: Dr Peter Banks

Craig James Lacey
MChem (Hons) Chemistry
Experimental analysis of N-heterocycles: Imidazoles

The focus of the research in the group is currently based on isolating compounds at a temperature of 2 K, often which are useful in biological systems, to identify structure and any bonding interactions that take place. This provides a foundation that allows for further chemical analysis or synthesis to be carried out. Microwave Spectroscopy is a powerful tool in molecular structure determination. The Chirped Pulse Fourier Transform Microwave (CP-FTMW) spectrometer at Newcastle University features a supersonic valve for intense cooling of molecules and a globally unique laser ablation source for rapid gas phase generation of solids. During the project, spectra of some imidazole derivatives (2-methyl-4-(5)-nitroimidazole and 4-(5)-methylimidazole) were recorded and rotational constants, centrifugal distortion constants and nuclear quadrupole coupling constants were determined. In addition, laser ablation afforded the fragmentation of the parent molecules which lead to observations of the astrochemically important CH3CN, CH3CH2CN and HC3N.

Funded by: Newcastle University
Supervisor: Nicholas Walker

Ryan Lamb
BSc (Hons) Biomedical Sciences
Investigating vascular endothelial cell activation during ex-vivo organ perfusion

There is a need to increase the number of donor lungs available for transplantation as currently 25% of people on the waiting list die before a suitable organ is found. Ex-vivo lung perfusion is a technique developed to allow use of donor lungs that would previously have been unsuitable. Previous research has identified a link between chemical messengers (cytokines) released during perfusion and how well the transplanted organ functions. This research aims to investigate how white blood cells react to specialist lining cells in the blood vessels of the lungs and how they are activated and cause damage due to cytokine activity. This will be achieved by flowing white blood cells over the lining (endothelial) cells using a microfluidic flow system (Cellix Ltd). From this work, we will have better understanding of the link between cytokine messengers and activation of endothelial cells in donor organs.

Funding source: Newcastle University
Supervisor: Prof Andrew Fisher
Edward Land
MEng Marine Technology with honours in Marine Engineering
An experimental study of oscillating fins as bioinspired propulsors for Marine Vehicles

Compare results gathered with mathematical models which have been developed in-house
The project will comprise of investigating the power generation and efficiency of oscillating fins in order to explore alternative forms of propulsion for marine vehicles instead of just propellers and if it is possible to generate the required power at a reasonable efficiency to be a suitable replacement for propellers in order to minimise noise and vibration caused by the ship which can be harmful to marine animals.

Tasks will include:
- Reading around the physics of thrust and torque generated by an oscillating fin.
- Designing and conducting experiments in order to measure the thrust and torque generated by fins of varying size and shape and at various oscillating speed.
- Calculating the efficiency of various fins based on test results.
- Comparing results from various fins to find optimum fin characteristics

Funded by: Newcastle University
Supervisor: Dr Maryam Haroutunian

Johannah Latchem, Tim Shaw & Gianluca Foschi
PhD Fine Art/ Art History
Courting Power: Courtroom Acoustics in Newcastle Guildhall

Courting Power is a sound artwork that explores how the acoustics and architecture of the unique 17th century courtroom at the Guildhall, Newcastle upon Tyne silenced or facilitated the voices of those involved in its judicial processes. Artistic and scientific approaches have been employed in the investigation of the court's rich acoustic history and historic archival documents dating from 1656 that discuss the acoustic dynamics of the courtroom have also informed this work.

Funding source: NUHRI Challenge Labs & Catherine Cookson Fund
Supervisor: Prof Ian Ward

Mohammed Latif
MEng (Hons) Electrical and Electronic Engineering
Closed Loop Implantable Sensor System

Working to provide a solution for epilepsy, which occurs when brain waves are disrupted producing unusual activity resulting in seizures. This project aims to produce an implantable device capable of modulating the unusual activities in the brain and hence, preventing seizures. In order to do this, the device needs to continuously monitor activity within the brain via implanted electrodes and modify the brain waves via implanted light sources. As an intern, I worked on the communication side of the implantable device, the device must be able to communicate with the outside world often, the method of using light to transmit data through the skin and into the device was investigated. The aim was to transmit data at a high speed whilst consuming minimal power. It was found that the transmitting data at such high speeds with minimal power and current is difficult, and may not be possible.

Funded by: Newcastle University
Supervisor: Dr Patrick Degenaar
Zena Latt  
**MPharm Pharmacy**  
The Identification and Synthesis of Novel Allosteric Integrase Inhibitors

**Phase 1**
This stage includes evaluating the important physical and chemical factors in developing an antiretroviral drug used to target HIV and comparing the structures of pre-existing designs. The aim of this phase is to suggest similar and improved structures to ones already suggested by Dr Gong.

**Phase 2**
The latter part of the project is to synthesise one of the proposed structures from phase 1.

**Funding source:** Newcastle University  
**Supervisor:** Dr Mark Ashton

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Francesca Lawson  
**MPharm Pharmacy**  
The identification and synthesis of novel allosteric integrase inhibitors

The research focuses into a new approach for the treatment of the HIV. HIV causes severe damage to the human immune system, leading to AIDS. This approach involves targeting a specific viral enzyme; integrase, an enzyme which enables HIV to insert its own genetic material into the DNA of a human host cell.

In the past, drugs have been developed which work by affecting the enzyme at its active site. The project focuses on targeting integrase by using a newer approach. This approach involves targeting the enzyme at another region, other than its active site. This is known as allosteric inhibition. The result of allosteric inhibition is that the virus is no longer able to produce new viral particles by using infected cells. The research will identify key components of some current leading compounds responsible for the effect of allosteric inhibition, and synthesising one of the leading compounds identified.

**Funding source:** Newcastle University  
**Supervisor:** Dr Mark Ashton

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Phyllis Leung  
**BSc (Hons) Psychology with Professional Placement**  
Support for Teaching Assistants – What Needs to Change?

The role of a Teaching Assistant (TA) has changed over time from a helper role to a more direct role in supporting children’s learning process. Recent studies found TA input may not benefit pupil’s academic progress due to issues such as lack of training. This study aims to 1) investigate the range of training TAs have and perceive they need 2) use the COM-B model to better understand the effectiveness of TA support. The COM-B (‘capability’, opportunity’, ‘motivation’ and ‘behaviour’) model is a framework for understanding behaviour which indicates the barriers and enablers of the behaviour.

TA participants completed an online questionnaire and we found that TAs have the motivation and capability to effectively support children in the classroom, but are lacking certain physical and social opportunities. Based on the findings, we recommend providing TAs with dedicated time for training, planning and feedback time with a senior member of staff.

**Funding source:** Newcastle University  
**Supervisor:** Dr Helen Stringer

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Willhelmina Lucinescu  
**MSci Biomedical Sciences**  
The impact of patient mutations in Na/phosphate cotransporters to function and trafficking of the protein

Most of us consume foods such as eggs, milk and chocolate, but we do not think of the phosphate they provide and its big role in the body. It helps grow strong bones, energise the cells and is also a building block for cell membranes. The kidneys, which are known to filter everything that enters our blood, have to make sure important electrolytes such as phosphate are not lost with urine and thus use proteins that transport it from the blood back into the cells. This project aims to characterise how defects in the genes that code for these transporters lead to diseases, such as kidney stone formation, rackets and osteoporosis, because phosphate balance in the body is lost. Ultimately, I will be looking at how these defective proteins are different from normal transporters and their ability to take phosphate into the cells.

**Funding source:** Wellcome Trust  
**Supervisor:** Dr Andreas Werner
Jennifer Lumley  
**BSc (Hons) Biomedical Sciences**  
**Profiling notch ligand expression in human tissues**

The immune system is the body’s defence against diseases such as cancer, and those caused by viruses and bacteria. Dendritic cells are a type of white blood cell that can activate and control immune responses. Manipulating these cells could potentially be used as a therapy to stimulate a stronger response against chronic viral infections and cancer, or to make a vaccine more effective.

Recent work has identified that a cell signal known as notch ligand enhances a specific type of dendritic cell, classical dendritic cell type 1. This type of cell is good at generating a strong immune response. However, it is not yet known in which body tissues notch ligand is found in. This project aims to determine whether notch ligand is found in human bone marrow, skin or spleen, allowing us to better understand dendritic cell development in the body and the opportunities for therapeutic manipulation.

**Funding source:** Newcastle University  
**Supervisor:** Dr Venetia Bigley

Hou Mak  
**MBBS (NUMed Malaysia)**  
**The Requirement for Primary Cilia in Heart Development: Cre-Lox Based Analysis of Cardiac Progenitor Lineages.**

Malformations of the heart affect almost 1 in 40 people. The cause of most congenital heart disease (CHD) is still unknown, but genetic and environmental causes are presumed to be important. The cilium is a finger-like projection found on most cells, important for signalling and sensing. Recently cilia related genes been suggested to be an important cause of CHD. We are investigating this proposal by genetically removing the cilium from different cell types that form the heart using genetically modified mice and determining what heart malformations occur. During this summer project, the student will join a laboratory of 12 researchers investigating this problem. They will be taught how to perform basic molecular biological techniques such as PCR and fluorescent immunohistochemistry. With support the student will work towards producing a figure for inclusion in publication, whilst learning a broad range of transferable laboratory and presentation skills.

**Funding source:** Newcastle University  
**Supervisors:** Dr Bill Chaudhry and Prof Deborah Henderson

Sher Min Mak  
**BSc (Hons) Biomedical Sciences (NUMed 2 +1)**  
**Screening, isolation and identification of antibiotic-resistant coliform bacteria from suburban river water**

Antibiotic resistance among bacterial species are emerging at an alarming rate and are responsible for many serious hospital-acquired infections worldwide. It is thought that aquatic environments serve critical role for spread of antibiotic resistance, introducing enormous threats on global health. In particularly, ESBLs-producing and carbapenem-resistant Enterobacteriaceae (CRE) are both important source of concern as these bacteria are multidrug-resistant and can render treatments using many antibiotics ineffective. This study was aimed to screen for presence of ESBLs-producing and carbapenem-resistant coliforms in Malaysia suburban river water and also to confirm their identity based on 16S-rRNA sequencing. The study revealed that ESBLs-producing coliforms were present in greater abundance than carbapenem-resistant coliforms in suburban river water. Coliform bacteria in river water more commonly develop resistance towards ampicillin and cefotaxime antibiotics than towards carbapenem, the last resort of antibiotics. Apart from coliform bacteria, other species of antibiotic-resistant bacteria were also detected in suburban river water.

**Funding source:** NUMed Malaysia  
**Supervisor:** Dr Jeyanthy Eswaran
Community pharmacists support patients’ medication use in a number of different ways; however, little is known about how pharmacists identify which intervention to recommend when patients are struggling to use their medicines as prescribed. Currently there is limited evidence to document what interventions are held in stock to support patients or how pharmacists and their staff deal with problems relating to intervention delivery. The project will answer the following four questions:

- What products, services or interventions do community pharmacists offer to support medicines use?
- What are community pharmacists’ attitudes towards these products, services or interventions?
- What are community pharmacists’ attitudes towards innovative digital health technology?
- How do community pharmacists identify which products, services and interventions to recommend to their patients?

Data from this research will provide insight into the thoughts, opinions and views of pharmacists into one of the major aspects of pharmacy practice.

Funding source: Newcastle University
Supervisor: Dr Adam Pattison Rathbone

In both academia and industry, there have been growing concerns over the mental toughness of students and graduates. University well-being services find counselling services stretched with cases of student anxiety; whereas employers find recent graduates struggle to deal with conflict at work. Past research has focused on the links between early attachment, emotional childhood neglect, and mental toughness. However, to date there has been less research on how sheltering young people may result in decreased ability to cope, e.g. when experiencing failure for the first time. This phenomena is referred to as ‘helicopter parenting’, as both parents, and society in general, attempt to protect young people from negative environmental stimuli – an issue that may be exacerbated in high socioeconomic groups. The present research will create the first validated multidimensional measure of helicopter parenting, and test the scale in an academic context, in order to predict mental toughness in university students.

Funding source: Newcastle University
Supervisor: Dr Trevor James

HIF1α is an important cellular protein, whose levels are upregulated in response to hypoxic stress (lack of oxygen) and this response is key to the survival of many cancer cells. In cells, mRNA is the code used to make proteins. The 5’UTR (untranslated region) of mRNA is the part that comes before the protein-encoding section and for many proteins it has been linked to protein level regulation.

The aim of this project was to investigate the importance of the 5’UTR of HIF1α mRNA in regulating HIF1α protein levels. CRISPR Cas9 was used to delete sections of the HIF1α 5’UTR and then the response of the cells to hypoxic stress was tested by looking at HIF1α protein level changes.

Results suggest the 5’UTR is important in upregulating HIF1α protein levels, however more research is needed to determine the specific region responsible.

Funding: Newcastle University
Supervisor: Dr Niall Kenneth
Telomeres are structures capping human and yeast chromosomes. These repetitive structures protect the internal regions of chromosomes which carry the genetic information and are affected in many human diseases. By studying yeast, a fast growing eukaryotic organism, I examined telomere length inheritance. The aim was to see what happens to telomere length in offspring that inherit abnormal telomeres.

I mated haploid parental strains (similar to sperm and eggs in humans) to create 9 diploids. The parents had different length telomeres (normal, long and short), and the diploids had all possible combinations. Diploids were grown for multiple generations, their DNA extracted at many time points, and telomere length measured.

Telomere length inheritance in budding yeast is complex and many patterns can be seen. In humans the patterns are likely to be at least as complex. My work has implications for the inheritance of telomere related diseases.

Funding source: Wellcome Trust
Supervisor: Prof David Lydall

Kwong (Chloe) Sou Meng
BA (Hons) Combined Honours
Malaysian English Syntax- Particles

Malaysian Colloquial English (MCE) is spoken widely in Malaysia, and is influenced by Chinese in various ways. This research focuses on the use of originally Chinese particles in MCE, such as lah, lor, meh, liao la. They affect the meaning of a sentence in ways that are often hard to describe. For example, in conjunction with the English modal verb can, Can lah means “Yes”, Can gua means ‘Maybe’, whereas Can liao la means ‘OK! Enough’. Relevant research has been undertaken on Singapore English but not yet on MCE. I have collected data in Malaysia by dyadic interview, in order to answer two questions. The first is, what are the non-English particles used in MCE and what is their precise effect on the meaning of the sentence? The second is, are they the same as in Singapore English? This study provides clues to how languages affect each other and how they survive in a community.

Funding source: Newcastle University
Supervisor: Prof Anders Holmberg

Rosa Mitchelmore
MBBS
Effect of influenza and treatment of influenza on morbidity and mortality of COPD admissions

Influenza, commonly known as ‘flu’, is an infectious disease caused by the influenza virus. Most people recover from the illness without complications. However, for patients with underlying medical conditions, influenza can be life-threatening. One such group is those with respiratory diseases affecting the lungs, such as Chronic Obstructive Pulmonary Disease (COPD). In the last four years, Newcastle-upon-Tyne Hospital Trust have introduced a test which can detect influenza quickly, leading to an increase in diagnosis of influenza amongst patients admitted. Analysis of the results show that a large number of patients admitted with worsening COPD have one of the two main influenza virus types. It is important to study the consequences of having influenza on patient outcomes, as this can be used when considering management of future admissions. This study with retrospectively analyse data from patients admitted with COPD problems to see if the presence of the virus affects outcomes.

Funding source: Newcastle University
Supervisors: Dr David Ashley Price and Dr Carlos Eschevarria
Non-alcoholic fatty liver disease (NAFLD) affects around 30% of global population. It encompasses a range of conditions from fatty liver (simple steatosis) to highly scarred organ which at its end stage becomes cirrhosis. There is no treatment available as the mechanisms of liver fibrosis are not well understood. Thus, this project aims to unravel the molecular mechanisms regulate transition from simple steatosis onto scar depositing condition by treating fat loaded precision-cut liver slices (PCLS) with scar inducing agents and carrying out quantitative PCR on the samples. PCLS were used to keep the cell numbers and composition intact and the slices were cultured with a bioreactor to keep the cells alive up to 6 days. Results showed that the upregulation of DNMT3a, DNMT3b, TET2, TET3 and EZH2 genes is the possible cause of liver fibrosis.

**Funding source:** Newcastle University  
**Supervisor:** Prof Jelena Mann

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People with aphasia (PWA), communication difficulties after stroke, often have problems with reading; this impacts their ability to understand everyday text e.g. newspapers. The Comprehensive Assessment of Reading in Aphasia (CARA) has been developed as a web-based assessment for use by Speech and Language Therapists (SLTs). The test assesses comprehension of words, sentences and paragraphs and then produces a report about the client’s performance. This research evaluated the format, presentation and ease of use of the assessment from the perspective of both SLTs (via a survey) and PWA (via a focus group). Results showed all the SLTs found the assessment easy to use. PWA desired larger navigation buttons and shorter sentences in the instructions. Both groups found the provision of a report useful however PWA would prefer a summary of the information provided. Both groups preferred the web-based assessment to a paper-based one however recommended offering the choice.

**Funding source:** Newcastle University  
**Supervisors:** Dr Julie Morris & Dr Janet Webster

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Complement is part of the immune system which fights infection. It is always active in our bodies to stop infection, but it does not damage our own tissues. Unlike pathogens, our blood and tissues have protective proteins which inhibit complement. When this control ‘goes wrong’ our organs can be damaged, triggering disease.

One of the ways these diseases can occur is through abnormal production of ‘autoantibodies’ which inactivate the protective proteins. Researchers in Newcastle developed an ‘artificial’ autoantibody which was thought to mimic those produced in diseases. In my project, I used several techniques to purified and test this autoantibody to show that it binds and inactivates the protective proteins and so causes abnormal activation of the complement system in human blood. By doing this, I have shown that in the future this autoantibody can be used as a model that can test new drugs for therapy.

**Funding source:** Wellcome Trust  
**Supervisor:** Prof Claire L Harris
Liam Myers
BA (Hons) English Literature
Evolution of a Poet: Reading and Interpreting Wordsworth’s Manuscripts

This project has two primary purposes. It aims both to trace the changing representation of the natural world and religious faith in the poetry of William Wordsworth, and to document an engagement with different manuscript versions of a text. It will focus on a comparison of selected passages from Wordsworth’s poem The Prelude in three of its manuscript iterations. The research will primarily concern the composition of The Prelude undertaken while Wordsworth lived at Dove Cottage, Grasmere (1799–1808). Benefitting from the close partnership between the School of English at Newcastle University and The Wordsworth Trust, some of the research will be undertaken at the Jerwood Centre in Grasmere through consulting original manuscripts and rare first editions housed in the Trust’s collections. The work will be documented with the aim of demonstrating the value of taking archival research in English Literature to non-academic audiences, and of undergraduate students experiencing such research.

Funding source: Newcastle University
Supervisor: Prof Michael Rossington

Joohyun Park
Bachelor of Laws
The Political and Legal Impacts of Brexit

Brexit means the process that will result in the United Kingdom (UK) leaving the European Union (EU). In the EU referendum held on 23 June 2016, the majority with 51.9% voted in favour of leaving the EU, out of a turnout of 72.2%. The UK government has indicated it will respect the referendum result and so the UK needs to prepare for the impact of Brexit when leaving in 2019. It is predicted that the UK will be more independent from the EU politically and legally than in the past when it has been a member of the EU. This research will examine the potential impacts politically and legally, and how the UK needs to prepare for these; particularly, it will look at how the UK courts are intended to take decisions on matters of ‘former’ EU law, and how they may use EU legal sources in the future.

Funding source: Newcastle University
Supervisor: Dr Sylvia de Mars

David Olowookere
MPharm Pharmacy
The identification and synthesis of novel allosteric integrase inhibitors

Studies have elucidated the basic importance of integrase in the replicative cycle of HIV; integration of viral DNA into host DNA results in permanent infection. Without treatment, progression to AIDS is inevitable. The purpose of this research is to develop new integrase inhibitors, that can both disrupt its core function (integration of viral DNA into human DNA) and its ancillary function in viral maturation; this is the process whereby new viral particles are assembled ready to infect health cells.

Funding source: Newcastle University
Supervisor: Dr Mark Ashton

Aidan McCall & Zameer Parvez
MMath Mathematics/MComp (Hons) Comp Sci W Ind Placemt
Adaptive testing as a tool for diagnosing mathematical proficiency

This mathematical education research project will focus on the research and development of adaptive tests, primarily for use in diagnosing the proficiency of students entering the University into numerate disciplines. It will be a project crossing computing, mathematics, and to some extent engineering. An adaptive test can guide a student through a network of questions corresponding to specific skills, to determine the student’s level and areas for improvement. A test generates questions based on skills ‘ticked off’ by the student, dynamically generating questions based on previous outcomes in order to get a thorough snapshot of their proficiency.

The project will review recent developments in adaptive and diagnostic testing, and in particular consider the DIAGNOSYS tool developed by Dr John Appleby (project co-supervisor) for diagnostic tests in engineering. Students will help to develop a framework for creating adaptive tests in the University’s mathematical e-assessment system Numbas.

Funding Source: Newcastle University
Supervisors: Dr Chris Graham, Dr John Appleby, Dr Marie Devlin & Mr Christian Lawson-Perfect
Major depression is a depressive disorder characterised predominantly by low mood, among other symptoms. Currently, major depression is diagnosed based on timescales of symptoms, which may make distinguishing separate depressive disorders difficult.

The aim of this research project was to further prove differences in functional connectivity documented by other researchers, using larger sample sizes, in hopes that these differences may be used as diagnostic tools in personalised medicine.

The findings of my research showed no significant differences in several parameters of functional connectivity, including strength and path length of functional connections, between the brains of healthy controls and several severities of depressed patients. These results, however, do not mean there are no differences to be found. Restricted access to UK Biobank meant mean values of whole brain datasets had to be used, while there may have been differences in specific brain regions that were masked by the use of averages.

Funding source: Newcastle University
Supervisor: Prof Marcus Kaiser
Sheikh Tousif Rahman
MEng (Hons) Electrical and Electronic Engineering with Industrial Project
How Well Can Low-Power Embedded GPUs Handle Large Non-Graphical Tasks?

(A study into low power embedded GPU and CPU run time and power consumption processing non graphical loads through OpenCL framework)

In recent years the shift of the role of the GPU (graphics processing unit), traditionally a fixed function special purpose graphics processor, to a more general purpose programmable unit has meant greater productivity from heterogeneous computing. Heterogeneous computing involves the use of multi-cores, CPUs, GPUs and DSPs (Digital Signal Processors) to synergistically accelerate large computations.

My research scholarship project was centred around trying to learn OpenCL framework to appreciate how this programming model can be implemented across heterogenous units. To evaluate this learning an experiment was devised to identify the productivity of low power GPUs against CPUs when processing non graphical loads.

While many research papers have looked into the GPGPU based problems with the goal of maximising speed-up on high end GPUs the goal of this experiment was to give a low power CPU and GPU a large processing task and monitor the power consumption and run times.

Funded by: Newcastle University
Supervisor: Dr Rishad Shafik

Melissa Raine
BSc (Hons) Biomedical Sciences
Ex vivo exploration of host-microbial interactions in gastrointestinal health and disease: Isolation and banking of microbial isolates from preterm infants

Necrotising enterocolitis is a potentially devastating disease of babies born prematurely (prior to 37 weeks gestation), that is associated with a high early requirement for major surgery and a high mortality, with longer term implications for physical health in those that survive. The cause of the disease is not completely understood but is likely mediated by an inappropriate host immune response to intestinal microbes. We have established methodology for growing primary epithelial cells from resected tissue in babies with NEC (“preterm intestinal enteroids”) and now wish to explore the impact of co-culturing an array of microbial species with enteroids to examine host-microbial interactions. This project will isolate several microbial species from stool samples obtained from preterm babies for down stream ex vivo immune experiments.

Funding source: Newcastle University
Supervisor: Dr Christopher Lamb and Dr Christopher Stewart

Reham Sedeeq
MPHarm Pharmacy
A Time and Motion Study to assess the impact of a novel medication administration scanning device on nursing efficiency

Health Information Technology interventions can minimise errors and improve patient outcomes. However, the impact of such interventions on nurses must also be considered. A validated structured questionnaire (Medication Administration System-Nurses Assessment Satisfaction scale) was distributed to nurses on 16 wards to explore their satisfaction with the current drug administration process. The questionnaire focused on three main areas: (a) safety and (b) efficacy of the process, and (c) access, which received average scores of 2.3, 2.6 and 2.6 respectively (a score of 1= extremely satisfied and a score of 6= extremely dissatisfied). Nurses aged <25 yrs were more satisfied with how readily available medicines were in comparison to nurses aged 50 and above. Nurses were most content with the ease of following the 5-rights (administering the right medication at the right time to the right patient etc.). Potential improvement areas were identified, including the turnaround time of obtaining medicines from pharmacy.

Funding source: Newcastle University
Supervisor: Dr Sarah Slight

Elliot Sexton
MBBS
Testing the validity of the QRSVm parameter for predicting ventricular arrhythmic events in patients with Tetralogy of Fallot – Elliott Sexton

Tetralogy of Fallot (TOF) is a complex congenital heart condition, characterised by multiple cardiac malformations, that presents in ~3 of every 10,000 births. TOF children have a cardiac anatomy that permits the mixing of deoxygenated and oxygenated blood and require reparative heart surgery to treat. Following surgery, most TOF children can lead normal lives, although some develop abnormal heart rhythms (arrhythmias) as adults, potentially resulting in sudden cardiac death. Currently, no predictive measure exists to detect TOF patients at heightened risk of developing arrhythmias. Last year however, Cortez et al proposed that a low QRS Vector magnitude (QRSVm - a value calculatable from an ECG), may predict arrhythmias in post-operative TOF patients.

My project tests the validity of the QRSVm parameter in predicting arrhythmias in a local population of TOF patients and evaluates its potential for identifying high-risk patients that may benefit from interventions to prevent arrhythmias.

Funding source: Newcastle University
Supervisor: Dr Louise Coats
X-rays damage our genetic material (DNA) by causing DNA double strand breaks, possibly leading to cancer. Healthy individuals have multiple efficient mechanisms to repair damage to DNA but certain people might have problems repairing DNA damage as they have faulty copies of particular genes in DNA repair. For example, mutations in BRCA1 and BRCA2 genes may be associated with defective DNA repair and cause breast and ovarian cancers. This study aims to investigate whether X-rays cause higher levels of DNA damage in cells with faulty copies of BRCA1 than in normal cells. There is a radiobiological concern in BRCA1 mutant carriers due to increased levels of DNA damage in breast cells after X-rays. Given that breast and ovarian tissues have the highest levels of the hormone oestrogen, the study identified potential roles of oestrogen in causing DNA damage or impairing DNA repair pathways and further investigations are warranted.

Funding source: Newcastle University
Supervisors: Dr Paul Jowsey & Dr Stephanie Meyer (co-supervisor)

Mohammed Naeem Sheikh
BDS Dentistry
The effect of non-ideal illumination on the properties of new dental composite based filling materials

When teeth are decayed dentists often need to fill the tooth with a filling material. Amalgam has been the material traditionally used by dentists but it does not last forever, does not look like the surrounding teeth and contains mercury, which has led to some public health concerns. Alternatively, dentists can use composites, which can be made to look tooth-like and do not contain mercury. However, due to difficulties in how they are placed, particularly due to difficulties in consistently placing the light unit used to set the composites in a tooth, they do not last as long as amalgam.

In this project we will look at some bulk-fill composites, claimed to be easier to use, and study how the distance and angle the light unit is to the composite surface affects how well they set and how hard the composites are over a period of four weeks water storage.

Funding source: Newcastle University
Supervisor: Dr Matthew German

Ivan Shmarov
BSc (Hons) Physics
Discerning the origin of the abnormally high efficiency in Perovskite solar cells

Sunlight is a clean, renewable source of energy that is extremely important at this moment in time, as climate change is occurring, demand for energy is rising and non-renewable energy resources are running out. However, it can be expensive to manufacture high efficiency solar panels that can tackle this problem. Recently, a new type of material called “perovskite” has been introduced that can be used to make solar cells with unusually high efficiency. Here, the most intriguing parameter is the device’s “open circuit voltage”, which is higher than predicted and unexpectedly close to the theoretical limit. My project was focused on investigating this unusual effect by designing and prototyping a set of instruments that allow convenient electrical measurements at very cold (cryogenic) temperatures to understand its fundamental principle, and by acquiring an initial set of data. Analysis of the data revealed a correlation between temperature and the mechanisms that define the “open circuit voltage”, such as “ion migration”.

Funded by: Newcastle University
Supervisor: Pablo Docampo

Liang-How Sie
Batchelor of Laws
Examining epigenetics research findings presented in the public sphere through the media

Epigenetics is a newly emerging field, which explains the ways in which medical, nutritional and behavioural experiences influence the expression of our genes, and how these changes are transmitted to subsequent generations. Although these molecular mechanisms are poorly understood, epigenetics knowledge is already influencing the public understanding of maternal responsibility and risk, the advice given to pregnant women and new preventative health initiatives. Research findings are often reinterpreted within the public sphere in an exaggerated and oversimplified form that focuses on the role of the mother, while family life and social environment are not given as much attention. This might create a culture that blames mothers for harming the health of this children through their life choices. This study will examine the presentation of epigenetics research findings in the public sphere by analysing press reports, news items, and scientific articles, and discuss the ethical and legal implications.

Funding source: Newcastle University
Supervisor: Dr Ilke Turkmendag
Nannapat Siraboriphantakul  
*BDS Dentistry*  
The Role of Voltage-gated Potassium Channels (Kv7) and Ca²⁺ sensing receptors in Persistent Orofacial Pain

Persistent neuropathic orofacial pain (POFP) is a condition where neurons (nerve cells) in the mouth have heightened excitability and as a consequence, uncontrollably transmit pain signals. The increase in excitability of these neurons is often due to imbalances between chemicals (potassium and calcium) that enters and exits the neuron through specific channels. These imbalances may cause death of the neurons and tissues nearby which may worsen the condition. Current treatment for POFP is inefficient because the mechanism behind POFP is not fully understood. In this project, we would like to test if by increasing the movement of potassium out of the neuron whilst simultaneously decreasing the neuron’s sensitivity to calcium we can decrease the hyperexcitability of the nerves and help restore their normal function thereby helping decrease pain. We will do this by using cell models that are in standard supply and testing them in different solutions.

**Funding source:** Newcastle University  
**Supervisor:** Dr Vsevolod Telezhkin

Wei Yan Soh  
*MBBS (NUMed Malaysia)*  
Does Low Dietary Phosphate Cause Kyphosis?

Kyphosis is a backbone disorder affecting 10% of farm pigs. It is hypothesised that these pigs lack an important bone mineral, phosphate. Zinc supplementation by farmers replacing banned antibiotics to enhance growth might have formed an insoluble precipitate with phosphate, thus reducing the amount of absorbed phosphate. Supporting evidence showed that all pigs developed kyphosis when phytase, an enzyme releasing phosphate from organic materials, was absent from their diets.

The study aims to investigate whether phosphate deficiency causes kyphosis in farm piglets. Expression levels of zinc and phosphate transporters in kidney and intestinal samples were compared to normal piglets. Results show that kyphosis piglets express more phosphate transporters in intestines hence supporting the hypothesis that phosphate-deficient pigs develop kyphosis. The expression of phosphate transporters in kidneys is unaffected, possibly because phosphate transport is already at its maximum in rapidly growing piglets. No relationship is seen between zinc transporters and kyphosis.

**Funding source:** Newcastle University  
**Supervisor:** Dr Andreas Werner

Sean Nicholas Sutiono  
*BA (Hons) Accounting and Finance*  
The Evolution of Finance from the 20th Century to the 21st Century

My Research report will cover the progression of Finance from the 20th Century to the present times of the 21st Century we live in today. We will begin to talk about the common aspects revolving the modern commercial financial world to date, with the way we buy, sell and trade all goods and services to how we transfer and receive funds and how this financial system has evolved. Topics that evolved the world of finance such as, Sales & Trading, Effects of Inflation, Inconsistent Interest Rates, Exchange Rates, Investments, Information Security and Internet Banking. These are just some of the many factors that will continue to evolve the day to day lives of millions. We will also continue to analyse how these factors continue to evolve in the 21st Century and beyond, in this day and age of immense complexities, where communication is instantaneous and in an era of constant developmental change. This research will also analyse the benefits and the consequences of such fast-paced finance and its future development.

**Funding source:** Newcastle University  
**Supervisor:** Prof David Higgins

Josie Swan  
*BSc (Hons) Biomedical Sciences*  
Urinary fluoride excretion for monitoring fluoride exposure in humans: a systematic scoping review

Studies have shown that low levels of fluoride in the oral cavity is most useful for dental decay prevention, however excessive ingestion of fluoride can increase the risk of the development of dental fluorosis (mottling and discolouration of the teeth) and at a very high dose, skeletal fluorosis. It has been reported that the major sources of fluoride intake include artificial- or naturally fluoridated water; food and drinks prepared with such water; dietary supplements, e.g. fluoride tablets and with inadvertent ingestion of fluoridated toothpastes, providing an additional source of systemic exposure to fluorides.

Urine is the primary route of fluoride removal from the body, however there is currently no clear understanding of types and validity of methods used in research studies associated with urinary fluoride excretion. A scoping review mapping the evidence, and guiding the development of precise methodologies for future fluoride monitoring studies needs to be carried out.

**Funding source:** Newcastle University  
**Supervisor:** Dr Ruth Valentine
Anthony Sweeting
BSc (Hons) Theoretical Physics
“Relativistic corrections to Schrödinger’s equation based on the Zeroth Order Regular Approximation”

Most problems in modern physics are solved using one of two fundamental theories, quantum mechanics or Einstein’s theory of relativity. Quantum mechanics describes the physics of the very small, and Einstein’s special relativity describes the physics of the extremely fast (close to the speed of light). When we come to consider very heavy atoms, however, their electrons are travelling close to the speed of light. To accurately describe their motion, we must combine the equations of quantum mechanics with those of special relativity. A promising way to achieve this is to use the ‘zeroth order regular approximation’ (ZORA) if its two main drawbacks can be ameliorated, namely gauge invariance and poor description of core electrons. This project aims to address both of these deficiencies by appropriate, system specific, modification of the kinetic energy operator. This should lead to a hitherto unprecedented balance between accuracy and efficiency.

Funded by: Newcastle University
Supervisor: Dr Mark Rayson

Isabel Sykes
BA (Hons) English Literature and History
Women’s industrial work during the nineteenth century and its impact on working-class female identity in Northern towns and cities

This research takes an interdisciplinary approach to examine the impact of the industrial revolution, particularly the rise of female labour in mills and factories, on working-class women’s social and political identities. By examining the writing of and pertaining to working-class women (both historical and fictional) during the mid-nineteenth century, this research attempts to recover female perspectives that have been neglected in favour of patriarchal and middle-class narratives. Research conducted at Huddersfield University, the People’s History Archives in Manchester, and Newcastle University’s Special Collections revealed that women’s perceptions of their domestic roles, their position in society in relation to men, and their political consciousnesses were widely varied and often conflicting. Overall, details of female involvement in political movements such as Chartism and the work of working-class women poets and autobiographers consistently revealed a desire for self-representation and self-definition in a society that rendered their social, political and economic identities inherently unstable.

Funding source: Newcastle University
Supervisor: Dr Annie Tindley

Tam Yun Tak
BA (Hons) Architecture
Self-Sufficiency and New Sustainable Paradigms: Autonomous Alpine Huts of the European Alps

For over a century alpine walking and climbing have been supported by an extensive range of huts from simple bivouacs to multi storey buildings. The majority of huts are comparatively accessible, while others are located in remote or difficult to access high altitude sites and provide safe refuge in places where ordinarily it would be difficult to sustain life without shelter. With the growing popularity in alpine tourism there is pressure to design huts, particularly those at high altitude with minimal environmental footprints. In recent years a number of new huts have been commissioned that forge new sustainable approaches to material resource use, energy conservation, energy generation, water use and waste recycling. This project will investigate how this new generation of alpine huts contribute to the experience of climbers and walkers, how their materiality (structural, material and energy strategies) affects the notion of “shelter” and how this interacts and responds to the atmosphere and sustainability of place.

Funding source: Newcastle University
Supervisor: Dr Neil Burford

Jia Xin Tang
BSc (Hons) Biomedical Sciences (NUmed 2+1)
Assessment of Antimicrobial Property of Hedyotis diffusa (White flower snake tongue grass) Extracts

As conventional antibiotics increasingly conferred bacterial antibiotic resistance, plant-derived antimicrobials have become potential alternatives. The project aims to investigate antimicrobial activity of H. diffusa, commonly used in Traditional Chinese Medicine for inflammation-related conditions, against opportunistic pathogen. Secondary metabolites of H. diffusa were extracted using three different solvents, namely ethanol, methanol and water through maceration. Kirby-Bauer disc diffusion assay and broth microdilution assay were used to test susceptibility of Staphylococcus aureus, Staphylococcus epidermidis and Escherichia coli K12 towards H. diffusa extracts. Disc diffusion assays of all three extracts returned negative antimicrobial activity. On the other hand, broth microdilution assay suggested possible antimicrobial activity of H. diffusa extract against S. aureus and S. epidermidis but not E. coli K12. Both ethanol and methanol extracts recorded a minimum inhibitory concentration (MIC) of 15 mg/ml against S. aureus and S. epidermidis whereas aqueous extracts has an MIC of 60 mg/ml against S. epidermidis.

Funded by: NUMed Malaysia
Supervisor: Dr James Woon
To initiate movement, our brain must send signals to muscles through the primary pathway for movement control (the corticospinal tract). Damage to this pathway in stroke patients impairs their movement. Stroke patients can regain movement to a certain extent through compensation from an evolutionary older pathway (the reticulospinal tract). Loud startling noises activates this pathway and is being studied for stroke recovery. Scientists propose that rapid visual reactions occur via a pathway involving the reticular formation.

My study involves measuring rapid visual reactions during a reaction time task in healthy human subjects on two separate sessions. One session with startle and the other without. Each session is followed by a washout period to investigate if the effect of startle on rapid visual reactions persists (plasticity). This experiment contributes to the big puzzle of reticular activation for stroke recovery as plasticity is essential for learning, memory and stroke recovery.

Funding source: Newcastle University
Supervisor: Prof Stuart Baker, Isabel Glover

Alzheimer’s disease (AD) and Lewy body disease (LBD) are leading causes of dementia in the elderly and are characterised by hallmark pathologies in the brain. The presence of pathologies associated with both diseases indicates mixed AD/LBD, however often the symptoms of one pathology are masked by the other one. The brain regions of these patients show the presence of toxic proteins including hyperphosphorylated tau (HP-T), which is associated with AD. We analysed the amount of HP-T present in the brain of patients affected by AD, LBD and mixed AD/LBD. Mouse antibodies were used to detect two different conformational changes of the tau protein. The results showed that mixed AD/LBD cases with clinical symptoms of AD had more “intermediary” (established) tau suggesting that AD was the initial cause of dementia whereas mixed cases with clinical symptoms of LBD had more “early” tau, showing that LBD was the initial cause of dementia.

Funding source: Biomedical Research Centre
Supervisor: Prof Johannes Attems

Nietzsche tells us that all values, through a macro historical process, result in nihilism. Nihilism is the self-destruction of value as it steadily proves itself incapable of dominating the world. This is the result of all attempts to codify the entire situation as it will always hit that which cannot be reduced to itself. Modern capitalism is dominated by money, and we need to consider if nihilism will impact its development as a value. Simmel points us to a topology of effects that emanate from money. Money for Simmel destroys other values and could cause what Nietzsche would term nihilism.

This project explores the possibility for a Nietzschean conception of nihilistic money, through the lens of Simmel. Not only is there similarity between these scholars, but together they give us a theoretical framework to discuss what monetary nihilism would look like.

Funding source: Newcastle University
Supervisor: Dr Andrea Rehberg

Rheumatoid arthritis (RA) is disease in which a particular type of immune cell called a CD4+ T “helper” cell is thought to “misbehave” to cause autoimmunity – where “friendly fire” by the immune system damages the body. As a result RA patients suffer painful inflammation of the joints and irreversible joint damage. It has been found that a gene called BCL-3 is “switched on” in circulating T helper-cells of early RA patients. We hypothesise that the resultant high levels of BCL-3 protein could be responsible for causing these cells to misbehave, acting as a ‘master regulator’ of T helper cell dysregulation. The aims of this project were to establish whether the over-production of BCL-3 has protective properties over the death (apoptosis) of T helper-cells and whether it results in increased production of interleukin 2 (IL-2) a signalling molecule produced by T-cells when activated by a pathogenic body, such as a microbial infection. These experiments could potentially identify BCL-3 as an important target for future RA treatments that might switch off the irreversible consequences of T helper cell misbehaviour.

Funding source: Newcastle University
Supervisors: Noushin Cooper, Oliver Eltherington, Amy Anderson & Professor Dr Arthur G Pratt
The androgen receptor (AR) drives prostate cancer (PC) development and is the main therapeutic target for disease treatment. However, current AR-targeted therapies are not 100% effective and often lead to the development of a more aggressive form of cancer called castrate-resistant PC (CRPC). Short forms of the AR called AR variants (AR-Vs) are commonly found in PC that are resistant to therapy, and because they are not inactivated by current therapies, drive progression of CRPC. This research project will look at how the use of a PARP (enzyme) inhibitor affects transcriptional activity. This will be achieved by low dosage treatments of PARP inhibitor onto CRPC cell line models. Also, cloning will be used to generate constructs that can be used to detect proteins and compounds that are involved in the formation of AR-Vs. This could then help with the understanding of what affects alternative splicing and provide new therapeutic targets.

**Funding source:** Newcastle University  
**Supervisor:** Dr Luke Gaughan

Over the last decade, the figure of the pregnant male has significantly emerged in popular culture. However, fictional depictions of male pregnancy (‘MPreg’) often reinforce the idea that pregnancy is an essentially female experience. Consequently, the experiences of pregnant transgender men are overlooked. Online fan-fiction (writing which uses a published text’s characters/settings) frequently contains MPreg narratives and has the potential to depict MPreg in more inclusive ways. My research asks whether MPreg fan-fiction can challenge the female coding of pregnancy and give voice to transgender experiences of pregnancy.

I focused on the fan community for the television adaptation Hannibal, surveying fans and closely analysing Hannibal MPreg fan-fiction. I found that MPreg works commonly coded the pregnant man as female. Nevertheless, some fans read and wrote MPreg fan-fiction in ways that prioritised transgender and/or intersex experiences of pregnancy. These perspectives have previously been overlooked within fan studies and deserve further exploration.

**Funding source:** Newcastle University  
**Supervisor:** Dr Stacy Gillis
Lucy Willis  
BA (Hons) Politics and Sociology  
Hate Crimes in the North East

A hate crime is an offence perceived by either the victim or witness as being motivated by hostility or intolerance; often, hate crime is seen as a means of preserving the gendered and racialised social ordering of Western culture. Thus, motivation for hate crime is deeply rooted in both the structural and cultural framework within which peoples interact. Hate crimes are a direct attack on who a person is and, subsequently, are found to have a more profound and damaging impact on its victims than other crimes. Understanding the extensive damage to both individual victims of hate crime and the wider community reminds us of the importance and urgency required in tackling these incidents.

The ultimate aim of this research project has been to gain an in-depth understanding of hate crime in Tyne and Wear and create a set of recommendations for a poster campaign that will be distributed across public transport in the North East to continue tackling the problem. Liaising with policymakers in the region, using empirical data and meeting with those targeted by hate crime has informed this project.

Funding source: Newcastle University  
Supervisor: Dr Ruth McAreavey

Ellen Wiltshire  
BA History and Archaeology  
Commemorating the Dead in Early Modern Newcastle

This project aimed to research attitudes towards death and commemoration in Early Modern Newcastle (1500-1800), and to explore how attitudes were affected by forces such as religious change and local events. My research centred on St. Nicholas’ Cathedral, looking specifically at the Ellison family, and contributed to an ongoing Lottery Funded project to uncover the genealogical history of those commemorated in the Cathedral on ledger stones and memorials.

Through my research, I found that attitudes towards death and commemoration in Newcastle largely followed the pattern of change in the rest of England, as Newcastle was affected similarly by the Reformation; the biggest single factor in changing practices towards death and commemoration in this period. However, there were elements of resistance to this change in Newcastle, as Reformation ideas did not seem to be taken up as quickly by those buried in the Cathedral as in other areas of England.

Funding Source: Newcastle University  
Supervisor: Dr Jane Webster
University Expeditions and Research Scholarships 2019

The University will once again support Expeditions and student Research Scholarships in 2019. The application form for the 2019 scheme is already available and can be found at: http://www.ncl.ac.uk/students/wellbeing/finance/funding/ukstudents/vacation/. Applicants will continue to be encouraged to seek external funding wherever possible. The web links below provide details about eligibility and applications procedures. Research Scholarships are available for six to eight weeks’ work and carry a grant of £200 per week. Schools or Research Institutes are expected to provide modest grants for essential materials, travel etc., in support of the awards.

A panel consisting of the Pro-Vice-Chancellor (Education) and Faculty Undergraduate Deans will again judge applications primarily on academic merit and potential for providing research training. Students awarded funding by the University Expeditions Committee will not be considered for Research Scholarship awards in any one year.

Specific details about the Presentations and Reception evening in previous years can be found at:

http://research.ncl.ac.uk/vacationscholarships/

Details about the 2018 presentations will be available on this website from the end of January 2019.

University Expeditions 2019

Information about submitting applications for University Expeditions Committee funding is available on the Student Financial Support section of the Student Health & Wellbeing web pages at: http://www.ncl.ac.uk/students/wellbeing/finance/funding/ukstudents/expeditions/

The deadline for receipt of applications is Friday 25th January 2019

University Research Scholarships 2019

Information about submitting applications for University Research Scholarships Committee funding is available on the Student Financial Support section of the Student Health & Wellbeing web pages at: http://www.ncl.ac.uk/students/wellbeing/finance/funding/ukstudents/vacation/

The deadline for receipt of applications is Friday 8th March 2019
Comments from Research Scholarship and Expeditions holders 2013-2018

Below are comments from a selection of research scholarship holders in previous years:

“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.”

“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.”

“I've always found it easy to talk to people but have really struggled when talking with academics about anything even slightly intellectual in case I get something wrong. This project has really helped me to find value in my own academic ability and viewpoints.”

“I am sure now that I want to pursue research as a career.”

“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.”

“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.”

“I am contemplating a Masters as a result. I think the important part of the Research Scholarship is providing an experience of what post graduate education is like, to make an informed decision of whether it is something you would like to pursue or not. Whether you pursue it or not, it is a highly valuable experience.”
Feedback from 2018
Research Scholarships scheme

It is hoped that if you were an undergraduate who undertook a funded research project during the summer of 2018 that it was a rewarding experience for you. The Research Scholarships Committee and the Student Financial Support Team strive to improve the scheme each year and would greatly appreciate feedback regarding your experiences and thoughts on this year’s presentation and reception.

A short survey is now available online here:

https://www.surveymonkey.co.uk/r/6XDH6LJ

Alternatively if you have any additional feedback not covered by the above please do not hesitate to contact us at:

Vacation-scholarships@ncl.ac.uk