Curtin University

PUBLIC HEALTH HONOURS MAJOR

2026 PROJECTS

WELCOME

ABOUT HONOURS

The Public Health honours is a specialised year of study for those students who have demonstrated a high level of academic achievement in their undergraduate degree. The honours year offers an opportunity to immerse yourself in a research topic under the expert guidance of an academic supervisor, providing you with advanced training in contemporary approaches to health research.

If you have performed well in your undergraduate studies, have a capacity for defining and solving problems, enjoy discussing concepts, and exploring ideas, we encourage you to apply for honours.

Honours has the ability to improve your employment opportunities, as many prospective employees view honours as an indicator of advanced skills and knowledge and an ability to work independently. The completion of an honours year shows that you have persistence, the ability to apply yourself to achieving a complex goal and are able to manage your time when presented with a large task to complete independently.

Public Health honours students are a select group. If you are successful in your application, we look forward to welcoming you to our stimulating, supportive and growing research community.

YOUR HONOURS COORDINATOR

Professor Jonine Jancey
PHHonours@curtin.edu.au

INSTRUCTIONS TO STUDENTS

We encourage you to review the available projects listed under the School of Population Health themes in this booklet. We then invite you to contact the academic supervisor responsible for the project to discuss the research project in more detail.

ABOUT THE SCHOOL OF POPULATION HEALTH

The School of Population Health is one of four schools within the Faculty of Health Sciences, and was formed in a recent merger of the Schools of Public Health and Psychology. We teach and conduct cutting edge, world-class research across six themes: Nutrition and Dietetics, Occupation, Environment and Safety, Health Economics and Data Analytics, Health Promotion and Sexology, Mental Health Psychology, and General Psychology. The breadth these themes provide, gives opportunities for the School to excel in cross-disciplinary, end-user focused research.

The research undertaken within the School has an international outlook supported by a network of strong relationships with universities across Southeast Asia and Europe, making us an attractive destination for international students wanting to pursue education in public health.

HEALTH PROMOTION & SEXOLOGY PROJECTS

PROJECT TITLE

Examining the vulnerability of culturally and linguistically diverse (CaID) populations to homelessness in *a* Western Australian context

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Gemma Crawford - g.crawford@curtin.edu.au
Secondary Supervisor: Dr Krysten Blackford - k.blackford@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

People from culturally and linguistically diverse (CaLD) groups, including international students, are vulnerable to homelessness in Australia. However, this group is not currently well recognised in current prevention efforts and policies.

This project will explore insights from CaLD people regarding homelessness prevention, and barriers and enablers to accessing homelessness services for both themselves and their communities in the Perth metropolitan area. It will also review the appropriateness of current homelessness evaluation tools for CaLD groups in Australia.

The research objectives

- Examine perceptions of homelessness prevention from CaLD people
- Explore barriers & enablers to accessing homelessness services amongst CaLD people
- Review the appropriateness of homelessness evaluation tools for CaLD people
- Develop recommendations for homelessness prevention resources and evaluation tools specifically designed for people from CaLD backgrounds and their communities

This research will employ a mixed methods design. A literature review will be conducted to explore current homelessness prevention, service use, and evaluation methods for CaLD populations. Participants will be recruited from community organisations with established CaLD populations and will be invited to participate in qualitative data collection (e.g. semi-structured interviews or focus groups). A semi-structured discussion guide will be developed and pilot tested with the target group and refined prior to implementation. Commonly used homelessness evaluation tools will be assessed for use in CaLD groups in an Australian context.
The information from this research will assist with developing recommendations for homelessness prevention, service provision and evaluation for CaLD groups in WA.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Crawford, G., Connor, E., McCausland, K., Reeves, K., & Blackford, K. (2022). A scoping review on housing, mental health, and cultural and linguistic diversity. International Journal of Environmental Research and Public Health 19(24). https://www.mdpi.com/1660-4601/19/24/16946
- Blackford, K., Crawford, G., McCausland, K., & Zhao, Y. (2023). Describing homelessness risk among people from culturally and linguistically diverse backgrounds in Western Australia: A cluster analysis approach. Health Promotion Journal of Australia. https://doi.org/10.1002/hpja.704

GENERAL METHODOLOGICAL SUMMARY

Mixed Methods

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Ethics approval required

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Requires experience with SPSS and *a* current drivers license and the ability to travel within Perth to collect *data.*

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Adapting and promoting the Mentally Healthy WA Wellbeing and Assessment Tool for Adolescents

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Prof Sharyn Burns - s.burns@curtin.edu.au

Secondary Supervisor: A/Prof Christina Pollard - c.pollard@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Mentally Healthy WA manages the Act, Belong Commit Campaign. Act-Belong-Commit (ABC) is a state-wide evidence-based mental health promotion campaign, implemented designed by Mentally Healthy Western Australia (MHWA). ABC's wellbeing self-assessment tool is a strategy of the MHWA and was developed to assess engagement in mentally healthy behaviours. The tool's questions enquire about frequencies of mentally healthy behaviours and provide scores for each of its four sections. The tool has been tested and used with adults, however there is no research to determine suitability with adolescents. This project will involve the testing of the tool using qualitative (focus group discussions and/or interviews) and quantitative methods (online survey) with school-aged adolescents (12 – 18 years). It is anticipated that the tool be tested for validity and potentially reliability. The research would also explore how best to promote the tool to adolescents. There may also be potential to test some other Mentally Healthy WA messages during the qualitative research.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Smith, J, Hart, L, Leaversuch, F, Walton, A, Jameson, G, Samsa, H, Clarey, M, Millar, L, Burns, S, Pollard, C.M. "Promoting mental well-being in Western Australia: Act Belong Commit® mental health promotion campaign partners' perspectives." Health promotion international 39, no. 1 (2024): daae014, https://doi.org/10.1093/heapro/daae014

- Logan, B, Burns, S. 2021 Stressors among young Australian university students: a qualitative study, Journal of American College of Health, https://doi.org/10.1080/07448481.2021.1947303

GENERAL METHODOLOGICAL SUMMARY

A mixed-method: Qualitative (focus group discussions and/or interviews) and quantitative methods (online survey)

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Desirable skills; Good written and verbal communication skills; Sound organisational skills; Qualitative data collection and analysis (it is not expected students will have well developed data collection and analysis skills however a desire to learn and be involved is essential – I will be providing support and mentoring these tasks); Use of software, for example NVIVO (again not essential but willing to learn).

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Making Waves: Evaluating the Impact of a Youth Water Safety Campaign Over Time

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Renee Carey - renee.carey@curtin.edu.au
Secondary Supervisor: A/Prof Justine Leavy - j.leavy@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Drowning is a leading cause of injury and death among young people in WA. To address this, the DEEP (Drowning prevention Evidence and Evaluation Project) team in the School of Population Health, in collaboration with the Royal Life Saving Society of Western Australia (RLSSWA), has evaluated two youth-focused water safety campaigns: 'Don't Drink and Drown' and 'Be a Mermate'. These campaigns aim to influence knowledge, awareness, attitudes, intentions, and behaviours related to water safety. However, there is limited long-term evaluation evidence on the effectiveness of such campaigns. This Honours project aims to evaluate the impact of the 'Don't Drink and Drown' and 'Be a Mermate' campaigns using data collected over a 10-year period (2014-2024). By examining changes over time, the project will provide insights into the effectiveness of these campaigns in engaging young people and promoting safer behaviours in and around water.

Objectives:

- Analyse campaign evaluation data from 2014 to 2024.
- Assess changes in water-safety related knowledge, attitudes, intentions, and behaviours among young people.
- Contribute to the limited evidence base for youth-targeted drowning prevention.
- Support future improvements to youth water safety programs in Western Australia and beyond.

EXAMPLE PAPER/S THAT REFLECTS THE PROJECT/ TOPIC

- Leavy, J. E., Della Bona, M., Abercromby, M., & Crawford, G. (2022). Drinking and swimming around waterways: the role of alcohol, sensation-seeking, peer influence and risk in young people. PLoS one, 17(11), e0276558.
- Abercromby, M., Leavy, J. E., Tohotoa, J., Della Bona, M., Nimmo, L., & Crawford, G. (2021). “Go hard or go home”: exploring young people’s knowledge, attitudes and behaviours of alcohol use and water safety in Western Australia using the Health Belief Model. International journal of health promotion and education, 59(3),
- Casten M, et al. (2022). 'Keep watch around water': Short-term impact of a Western Australian population-wide television commercial. Journal of Public Health, 30, 151-157

GENERAL METHODOLOGICAL SUMMARY

Quantitative analysis

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Experience with SPSS; skills to analyse both qualitative and quantitative data; good interpersonal, oral and written communication skills, excellent verbal and written communication skills.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Balancing Protection and Connection: Healthcare Workers' Views on the "No Vax? No Visit!" Movement

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Krysten Blackford – k.blackford@curtin.edu.au
Secondary Supervisor: Dr Daniel Rudaizky - daniel.rudaizky@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

The "No Vax? No Visit!" social movement encourages parents to request visitors to newborns to be up-to-date with pertussis (whooping cough) vaccination to protect infant health. While parents' perspectives have been studied, there is little evidence about the views and experiences of healthcare workers (HCWs) who frequently advise new parents on vaccination and newborn safety. HCWs play a crucial role in communicating vaccine recommendations, navigating vaccine hesitancy, and supporting parental mental wellbeing, yet they may also face professional and personal tensions when discussing vaccination and protection guidelines with families.

This Honours project builds on a larger mixed-methods study examining the social connectedness and mental health impacts of the "No Vax? No Visit!" movement. While the parent study focuses on parents and extended family members, this Honours component will specifically explore HCW perspectives, filling a critical gap in understanding perceived benefits, challenges, communication strategies, and impacts on parental social connectedness and mental health.

Objectives:

- Identify perceived barriers and enablers to HCWs discussing "No Vax? No Visit!" with parents.
- Explore HCW experiences supporting parents in balancing infection prevention and maintaining social support.
- Assess attitudes towards the movement and confidence in addressing vaccine hesitancy.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Burns, S., Bhoyroo, R., Leavy, J.E. et al. Parents' attitudes towards the No Jab No Play legislation in Western Australia: a mixed methods study. BMC Public Health 24, 1514 (2024). https://doi.org/10.1186/s12889-024-18995-9
- Smith SE, Sivertsen N, Lines L, De Bellis A. Weighing up the risks - Vaccine decision-making in pregnancy and parenting. Women Birth. 2022 Nov;35(6):547-552. doi: 10.1016/j.wombi.2022.02.007. Epub 2022 Feb 18. PMID: 35190295.

GENERAL METHODOLOGICAL SUMMARY

Mixed methods

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Statistical analysis experience: Familiarity with SPSS, Stata or R for quantitative data analysis (training will be provided) • Qualitative research skills: Basic understanding of interview techniques and thematic analysis (training will be provided) • Healthcare context awareness: Understanding of Australian healthcare system and vaccination programs (undergraduate public health coursework sufficient) • Communication skills: Strong written and verbal communication abilities for conducting interviews and reporting findings • Professional maturity: Ability to engage respectfully with healthcare professionals and handle sensitive topics around vaccination • Time management: Project involves recruitment and scheduling of busy healthcare professionals, requiring strong organisational skills Use of software, for example NVIVO (again not essential but willing to learn)

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

Nicotine Pouches and Public Health: where to next?

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Prof Jonine Jancey - j.jancey@curtin.edu.au
Secondary Supervisor: Dr Kahlia McCausland – K.McCausland@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

While public health is focusing on limiting youth exposure and access to vapes, transnational tobacco companies have already moving to new delivery devices such as nicotine pouches. Nicotine pouches are small, flavoured sachets that are placed under the lip, thereby facilitating the direct absorption of nicotine, along with other flavourings. Unlike traditional cigarettes and vapes, these pouches do not emit any smoke or vapour. Their 'discreet' nature makes them challenging for health professionals, policy makers and educators to detect and in turn manage. No nicotine pouch is currently approved by the Therapeutic Goods Administration, and although illegal to advertise and sell in Australia, they are gaining popularity, particularly among youth, through promotion on social media, via online and bricks and mortar retailers, and word of mouth. Considering this research project aims to explore the proliferation of nicotine pouches among youth in Australia and determine the current promotional techniques and access approaches that are currently in use

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Jancey, J., Carey, R. N., Freeman, B., Leaver, T., Wolf, K., Bromberg, M., Chai, K., Bialous, S., Adams, P., Mcleod, M., & McCausland, K. (2024). E-cigarettes on Instagram: Exploring vape content via an Australian vaping influencer [journal article]. Tobacco Induced Diseases, 22(January), 1-11. https://doi.org/10.18332/tid/175619
- Jancey, J., Crawford, G., Bowman, E., Wolf, K., Leaver, T., Bialous, S., & McCausland, K. (2024). Perceptions of social media harms and potential management strategies: vaping case study. BMC Public Health, 24(1), 876.
- Scott, L., K. McCausland, B. Maycock, and J. Jancey. 2023. "The emergence of e-cigarette retail shops in a regulated tobacco control environment." Health Promotion Journal of Australia 34 (1): 185-192.

GENERAL METHODOLOGICAL SUMMARY

This study will predominantly collect qualitative data by way of interviews with young people. Some quantitative data collection and analysis will also occur.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Ethics approval required

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

We are looking for a self-motivated individual with a particular interest in social media, tobacco control, and translational research. Sound verbal and written communication skills and an interest in qualitative data collection and analysis, with a willingness to learn the NVivo program which will assist with qualitative data management.

NUMBER OF STUDENTS FOR PROJECT

1 - 2

BIOTECHNOLOGY PROJECTS

PROJECT TITLE

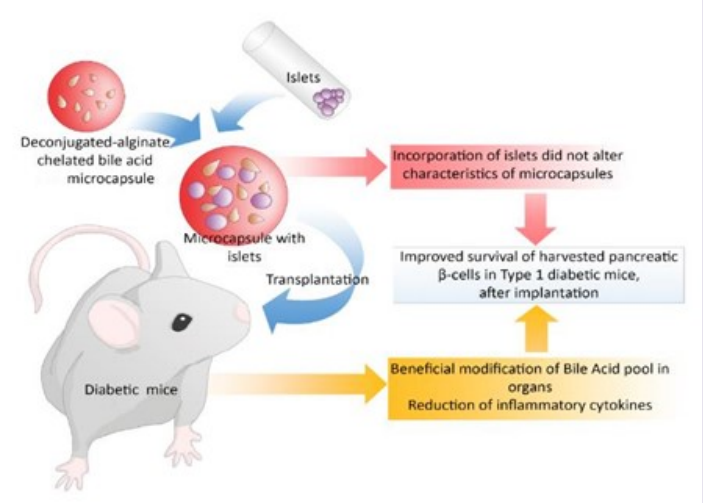
Organ-on-a-chip: the design of an artificial organ using cutting-edge bio-nanotechnologies and bio-printing platforms

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisors: A/Prof Hani Al-Salami - hani.al-salami@curtin.edu.au
and A/Prof Ryu Takechi - R.Takechi@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Multiple chronic disorders remain untreated despite best effort and ongoing research to design new therapies. A chronic disease that remains untreated, and a contributing factor to many disorders including hearing impairment, is diabetes. Diabetes is an epidemic and its incidence is rising by 2% every year in Australia and the world. It is costing the Australian government $10 billion a year with one Australian being diagnosed with diabetes every 5 minutes. There are three types of diabetes mellitus, Type-1 diabetes (T1D), Type-2 diabetes (T2D) and Gestational diabetes (GD). Current antidiabetic drugs remain ineffective in treating the disease and its complications as well as in improving long-term prognosis. Insulin is a widely used antidiabetic drug, and currently being prescribed for all T1D patients, more than third T2D patients and the majority of GD patients. Insulin is administered by injections and since its discovery in 1921, its route of administration has remained largely unchanged. Due to its current way of administration, insulin has many side effects and limitations, which compromise its antidiabetic effects. Ways to revolutionise insulin delivery include either designing a device that measures glucose continuously and pumps insulin from a reservoir carried out by patients, or by creating a healthy pancreas that can be transplanted and replaces currently damaged pancreas (known as islet transplantation). Over the last a few years, cell encapsulation and bio-printing have become new scientific adventures and are gaining significant interests as new technologies to revolutionise islet (and organ) transplantation. In 2014, Dr Al-Salami was the first in the world to introduce a new concept of bile acid incorporation via bio-nanotechnologies to enable organ creation and islet transplantation. This project builds on current findings and will focus on carrying out specific sets of experiments appropriate for innovative and timely completion of an Honour degree



EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Armin Mooranian, Corina Mihaela Ionescu, Susbin Raj Wagle, Bozica Kovacevic, Daniel Walker, Melissa Jones, Jacqueline Chester, Thomas Foster, Edan Johnston, Momir Mikov, Marcus D. Atlas, Hani Al-Salami. Probucol Pharmacological and Bio-Nanotechnological Effects on Surgically Transplanted Graft Due to Powerful Anti-Inflammatory, Anti-Fibrotic and Potential Bile Acid Modulatory Actions. Pharmaceutics, 13, 8, 10.3390/pharmaceutics13081304

GENERAL METHODOLOGICAL SUMMARY

Basic lab skills can be taught during induction and all needed training will be provided during the first two months.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Highly motivated to learn lab-based medically oriented projects.

NUMBER OF STUDENTS FOR PROJECT

1 - 2

PROJECT TITLE

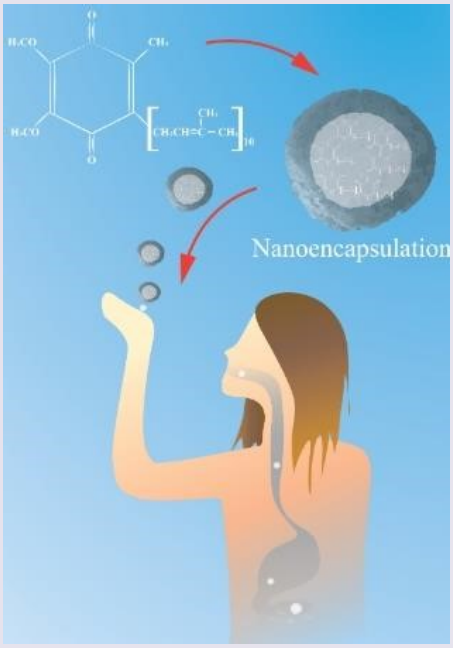
Transforming current drug uptake in patients, via using advanced bio-nanotechnologies.

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisors: A/Prof Hani Al-Salami - hani.al-salami@curtin.edu.au
and A/Prof Ryu Takechi - R.Takechi@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Since early 1900s, oral drugs have been formulated in tablets or capsules to optimise drugs' stability and to control drugs' release (either immediate release for fast effects or slow/controlled release for extended effects). Oral drug absorption occurs when a drug (in a tablet or a capsule) is swallowed and the tablet/capsule breaks down and drug is released in the upper part of the gut, where it moves down until it reaches a specific segment of the lower gut where the drug permeates the gut-membrane into the blood (i.e. absorbed). Different drugs are maximally absorbed from different segments of the gut, with antidiabetic drugs being absorbed mostly from the lower part of the small intestine. Diabetes mellitus is one of the most common chronic diseases in children, occurring more frequently than cancer, cystic fibrosis, multiple sclerosis and muscular dystrophy. Most antidiabetic drugs are not completely absorbed into the body after oral administration in tablets/capsules due to either[1] being degraded during their gut-passage and before reaching the specific gut-segment with maximum drug absorbability, or [2] once reaching the specific gut-segment with best absorbability, fail to permeate gut-membrane and reach blood/ systemic circulation. Accordingly, current tablets/capsules carrying antidiabetic drugs are often loaded with far more drug than what patients actually need, in order to compensate and accommodate for two things: [1] poor gut-targeting: inefficient delivery of the tablet/capsule to the drug, to the best gut-segment where most of the drug will be absorbed, and [2] poor gut tissue-permeation: insufficient amount of drug permeating through the gut membrane and reaching blood. Due to both points, current tablets and capsules cause many side effects and damage of healthy tissues. Thus, to date and despite new and sophisticated pharmaceutical formulations, lack of tissue-specificity remains a serious health concern and hence, for every dollar spent on acquiring drugs, another dollar is spent fixing/treating side effects. In order to revolutionise current oral drug administration in diabetes treatment, the new delivery system needs to possess: [1] gut-targeting property, so the drug is released with pin-point accuracy in the specific gut-segment with maximum drug absorbability for optimum effects and safety profile, and [2] the ability to enhance drug gut-membrane permeation and force drug molecules through the cell membrane via direct effect on cellular protein transporters. This project aims at examining new ways to improve how drugs work using nanotechnology.



EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Armin Mooranian, Nassim Zamani, Momir Mikov, Svetlana Goločorbin-Kon, Goran Stojanovic, Frank Arfuso, Bozica Kovacevic, Hani Al-Salami. A second-generation micro/nano capsules of an endogenous primary un-metabolised bile acid, stabilized by Eudragit-alginate complex with antioxidant compounds. Saudi Pharmaceutical Journal, doi.org/10.1016/j.jsps.2019.11.017

GENERAL METHODOLOGICAL SUMMARY

Basic lab skills can be taught during induction and all needed training will be provided during the first two months.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Highly motivated to learn lab-based medically oriented projects.

NUMBER OF STUDENTS FOR PROJECT

1 - 2

PROJECT TITLE

Creation of new therapies for hearing-impaired patients using nanotechnologies with pin-point accuracy: advanced chemical drug analysis using cutting-edge analytical methods for medical applications

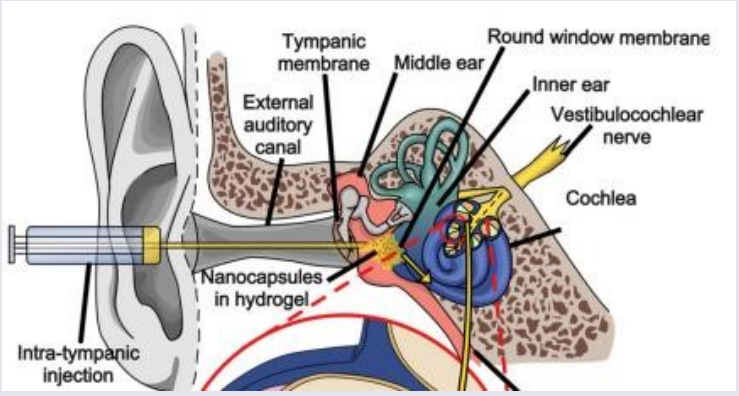
SUPERVISOR/S & CONTACT DETAILS

Primary Supervisors: A/Prof Hani Al-Salami - hani.al-salami@curtin.edu.au
and A/Prof Ryu Takechi - R.Takechi@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Hearing disorders are affecting significant number of people in Australia and worldwide with the prevalence rising at an alarming rate. Steroids are widely prescribed to treat a range of Hearing and Balance Disorders, such as: Autoimmune Inner Ear Disease, Sudden Sensorineural Hearing Loss, Acoustic Trauma, Meniere's disease, Labyrinthitis and Cochlear Implantation with residual hearing. Steroids can either be delivered systemically or via injection through the eardrum. However, the efficacy and safety profiles of current therapy lacks robustness and consistency and varies greatly between individuals, and this is generally due to the poor permeation and transport of steroids into fluids, compartments, and tissues in the inner ear. Recent research is aimed at developing techniques that enhance the transfer of steroids into the inner ear, and to assess the impact of these techniques the level of steroids in the inner ear fluids or tissues must be measured. The inner ear is very small, and poses a limit on the accuracy of drug level measurement, particularly in the smaller compartments of the inner ear, which are nonetheless vital to the inner ears function.

To date, none of recently developed techniques for inner-ear steroids-targeted delivery, or robust steroids' analytical methods have proved that effective, and hence, this project explores new and highly innovative ways to use nano and micro technologies to target-deliver steroids and enable development of unique HPLC/LCMS analytical systems for measuring steroid permeation and delivery (within the available time frame for Honours). Accordingly, in this project, we will develop new delivery matrices and optimise HPLC/LCMS methods for the detection of the commonly used steroid, dexamethasone, in inner ear, and demonstrate the practicality of measuring dexamethasone in the smallest of tissue spaces in the inner ear.



EXAMPLE PAPER THAT REFLECTS THE PROJECT / TOPIC

Armin Mooranian, Nassim Zamani, Momir Mikov, Svetlana Golocorbin-Kon, Goran Stojanovic, Frank Arfuso, Bozica Kovacevic, Hani Al-Salami. Bio Micro-Nano Technologies of Antioxidants Optimised Their Pharmacological and Cellular Effects, ex vivo, in Pancreatic β-Cells. Nanotechnology, Science and Applications, doi.org/10.2147/NSA.S212323

GENERAL METHODOLOGICAL SUMMARY

Basic lab skills can be taught during induction and all needed training will be provided during the first two months.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS / PRE-REQUISITE / REQUIREMENTS OF STUDENT

Highly motivated to learn lab-based medically oriented projects.

NUMBER OF STUDENTS FOR PROJECT

1 or 2

HEALTH ECONOMICS & DATA ANALYTICS PROJECTS

PROJECT TITLE

Adverse Perinatal Outcomes in the Northern Territory: Evidence Synthesis, Risk Prediction, and Policy Recommendations

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Professor Gavin Pereira - gavin.f.pereira@curtin.edu.au
Secondary Supervisor: Getaneh Baye Mulu - g.mulu@postgrad.curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

This project addresses adverse perinatal outcomes in the Northern Territory (NT), including preterm birth, stillbirth, low birth weight, and small for gestational age. These outcomes disproportionately affect Aboriginal and Torres Strait Islander communities and those living in remote areas, reflecting inequities in access to culturally appropriate and effective perinatal care. Despite multiple interventions over the past 2 decades, outcome rates remain among the highest in Australia, and evidence on the effectiveness and equity of these interventions is fragmented.

The project aims to synthesise evidence on perinatal health interventions implemented in Australia, with a focus on equity and the inclusion of marginalised populations. Analyse temporal trends in stillbirth and preterm birth in the NT (2000–2021) and assess the impact of past interventions. Interrupted time series analysis will be used to measure changes both before and after the intervention. Develop and validate predictive models for stillbirth and preterm birth using NTs routinely collected perinatal data, applying advanced machine learning methods. Generate consensus-based policy recommendations via a modified Delphi study with clinicians, policymakers, and community leaders. This multi-phase, mixed-methods research will generate evidence to inform targeted, culturally responsive, and data-driven strategies for improving perinatal outcomes in the Northern Territory.

EXAMPLE PAPER THAT REFLECTS THE PROJECT/ TOPIC

Trends and Risk Factors for Preterm Birth in the Northern Territory- Stillbirth Risk Prediction Using Machine Learning in Western Australia

GENERAL METHODOLOGICAL SUMMARY

Mixed Methods Approach: Scoping Review (Aim 1)- Retrospective Cohort Study: Trend analysis (Aim 2) and risk prediction models (Aim 3), and Modified Delphi Study (Aim 4)- Consensus Building

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Students should demonstrate basic quantitative research skills, familiarity with epidemiological concepts, experience using software such as R, Stata, or SPSS for data analysis / interpretation. Able to conduct literature searches, use reference management tools, critically appraise research papers. Good writing and

communication, and cultural awareness, particularly in the context of Indigenous health and equity, are essential.

NUMBER OF STUDENTS FOR PROJECT

2

PROJECT TITLE

Factors associated with quality of life in patients undergoing percutaneous coronary intervention in Vietnam

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Ngoc Minh Pham - Minh.N.Pham@curtin.edu.au
Secondary Supervisor: A/Prof Yun Zhao – Y.Zhao@exchange.curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Percutaneous coronary intervention (PCI) is a non-surgical and minimally invasive procedure commonly used for treating coronary artery disease. This procedure has been shown to improve patients' health quality of life (QoL). Previous studies explored the association of various factors with QoL (e.g., demographics, medical history, disease severity, health status...). However, results remain inconsistent and studies are still scant in Asia. This study will use data from a PCI registry conducted in northern Vietnam to investigate factors associated with quality of life post-PCI, measured with the EuroQoL-5 Dimensions 3-Level (EQ-5D-3l) and EuroQoL Visual Analogue Scale (EQ-VAS). Conducted during 2017-2018 in a leading cardiovascular centre in Hanoi capital of Vietnam, this project included baseline and and follow- up surveys *at* one month and 12 months post PCI.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Vu H et al. Sex differences in quality of life of patients following percutaneous coronary intervention in Vietnam.Qual Life Res. 2023;32:71-79

- Tin BT et al. Quality of life in patients with unstable angina before and after percutaneous coronary intervention: a single-center pilot study using the European quality of life 5-dimension 5-level (EQ-5D-5L) questionnaire. Cureus 2023;15:e45886.

GENERAL METHODOLOGICAL SUMMARY

Only quantitative methods will be used to assess factors associated with quality of life following PCI.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Ethics approval required

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

A prospective student should have basic knowledge about epidemiological study designs, particularly prospective cohort studies and biostatistics. It is necessary for the student to possess fundamental skills in data cleaning, preparation, analysis and exploration. Familiarity with *at* least one statistical software (e.g., Stata, SPSS, R, SAS) is essential.

NUMBER OF STUDENTS FOR PROJECT

1

NUTRITION PROJECTS

PROJECT TITLE

Exploring the Barriers for Schools to Engage with the OzHarvest FEAST Program

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Rebecca Russell - rebecca.russell@curtin.edu.au
Secondary Supervisor: Prof Andrea Begley - a.begley@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Oz Harvest's FEAST (Food Education and Sustainability Training) is *a* 10-week education program for primary (years 5-6) and high schools (year 7-8), which explores the issue of food waste and the environmental impact, sustainability, healthy eating, and builds self-efficacy with cooking skills (equipment provided - no kitchen required). The program is aligned to the Australian Curriculum (STEM, English, Health, Physical Education) and can be adapted to suit the school's needs.

FEAST is currently running in ~1200 schools nationally (12%) with over 66,400 students having completed the program and another 99,600 students currently enrolled. The program has been well-received by schools and the positive benefits have been reported; however, national uptake is low (12%).

The aim of this project is to conduct online focus groups with teachers across Australia who have previously and/or are currently delivering FEAST, to explore their perceptions on how FEAST has impacted their schools and the students, their recommendations relating to the ongoing program, and perceived barriers to uptake and how to overcome them.

EXAMPLE PAPER THAT REFLECTS THE PROJECT/ TOPIC

- Karpouzis, F., Lindberg, R., Walsh, A., Shah, S., Abbott, G., & Ball, K. (2024). Impact and process evaluation of a primary-school Food Education and Sustainability Training (FEAST) program in 10-12-year-old children in Australia: pragmatic cluster non-randomized controlled trial. BMC Public Health, 24(1), 657-657. https://doi.org/10.1186/s12889-024-18079-8

GENERAL METHODOLOGICAL SUMMARY

Qualitative

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Nutrition background; Communication skills; Interest in qualitative research

No prior knowledge of FEAST is required, as the curriculum will be explained as part of the Honours project

NUMBER OF STUDENTS FOR PROJECT

1- 2


EXIT
ONLY

OCCUPATIONAL ENVIRONMENTAL AND SAFETY PROJECTS

PROJECT TITLE

Switching to renewable fuels to combat occupational diesel exhaust health effects may backfire

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Katherine Landwehr – Katherine.landwehr@curtin.edu.au
Secondary Supervisor: A/Prof Alex Larcombe - alexander.larcombe@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Rising concerns about diesel exhaust health impacts, increasing fossil fuel costs, environmental effects, and the questionable ability to meet new occupational diesel exhaust exposure limits means companies are looking to switch to renewable fuels. Biodiesel, a fuel made from natural fats/oils, is one of the few alternatives available for heavy/industrial use. Significantly, the occupational health effects of biodiesel exhaust exposure are unknown but are predicted to be worse than that of diesel exhaust.

The aim of this project is to assess if biodiesel exhaust will elicit disease faster than diesel exhaust, activating cancer and lung disease pathways after a single exposure when multiple are needed for diesel exhaust to do the same. This will be done by assessing differential gene expression in the lung, brain and bladder from mice exposed for 2 hours per day for either 1 or 8 days to commercial diesel exhaust or two different types of biodiesel exhaust, with room air exposure used as a control.

Students interested in this project are expected to have some basic knowledge in genetics, bioinformatics, or coding with an interest in learning further skills in this area.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT / TOPIC

- Landwehr, K.R., Mead-Hunter, R., O'Leary, R. A., Kicic, A., Mullins, B. J., & Larcombe, A.N. (2024). The respiratory health effects of acute in vivo diesel and biodiesel exhaust in a mouse model. Chemosphere, 362, 142621. https://doi.org/10.1016/j.chemosphere.2024.142621

- Larcombe, A.N., Chivers, E.K., Landwehr, K.R. et al. Partial amelioration of a chronic cigarette-smoke-induced phenotype in mice by switching to electronic cigarettes. Arch Toxicol 99, 3007–3021 (2025). https://doi.org/10.1007/s00204-025-04055-7

GENERAL METHODOLOGICAL SUMMARY

Quantitative, RNA sequencing analysis, Differential gene expression

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Basic knowledge of genetics, bio-informatics or coding

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

What codes the development of asthma in children?

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: A/Prof Guicheng (Brad) Zhang - Brad.Zhang@curtin.edu.au
Secondary Supervisors: Peter LeSouef, Ingrid Dias, Ryan Mead-Hunter - r.mead-hunter@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

We use novel advanced epigenome molecular analysis approaches: Illumina Infinium EPIC methylation array and next-generation sequencing techniques to explore the whole methylome and miRNAome of peripheral blood mononuclear cells and nasal epithelial cells. The two important epigenetic features - methylation and miRNAs - will be thoroughly investigated in young children with early acute wheezing. The whole epigenome method has great advantages over the traditional candidate-gene epigenetic investigation method. The systemic (blood cells) and local (nasal cells) epigenetic variations will all be unveiled and examined for their contribution to the aetiology of persistent wheezing/asthma. If epigenetic biomarkers are identified by using the whole epigenome method, our studies will 1: guide translational clinical trials that will seek to impose an extremely substantial shift in treating and managing paediatric patients with asthma, e.g., *a* biomarker-targeted treatment protocol; 2: define subgroups of children with early wheezing and targeted or personal-tailored prevention strategy can be implemented accordingly to prevent the development of asthma; 3. these epigenetic biomarkers will provide new key regulatory checkpoints that can be targeted for novel asthma therapies and new drug development.

EXAMPLE PAPER THAT REFLECTS THE PROJECT/ TOPIC

- Children with nut allergies have impaired gene expression of Toll-like receptors pathway. Poole A, Song Y, O'Sullivan M, Lee KH, Metcalfe J, Guo J, Brown H, Mullins B, Loh R, Zhang GB. Pediatr Allergy Immunol. 2020 Aug;31(6):671-677. doi: 10.1111/pai.13246. Epub 2020 Apr 8.
- Cellular and molecular mechanisms of vitamin Din food allergy. Poole A, Song Y, Brown H, Hart PH, Zhang GB. J Cell Mol Med. 2018 Jul;22(7):3270-3277. doi: 10.1111/jcmm.13607. Epub 2018 Mar 25.
- Western environment/lifestyle is associated with increased genome methylation and decreased gene expression in Chinese immigrants living in Australia. Zhang G, Wang K, Schultz E, Khoo SK, Zhang X, Annamalay A, Laing IA, Hales BJ, Goldblatt J, Le Souef PN. Environ Mol Mutagen. 2016 Jan;57(1):65-73. doi: 10.1002/em.21989. Epub 2015 Dec 16.

GENERAL METHODOLOGICAL SUMMARY

Using quantitative methods to investigate the epigenetic mechanisms for asthma in children.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Biomedical skills and *data* analysis.

NUMBER OF STUDENTS FOR PROJECT

1

PROJECT TITLE

E-cigarettes: prevalence and attitudes among WA university students according to age and socioeconomic background

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: A/Prof Krassi Rumchev - k.rumchev@curtin.edu.au
Secondary Supervisors: Sue Gilbey - sue.gilbey@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

Electronic cigarettes (e-cigarettes) are *a* means of recreational use that can potentially eliminate the need to smoke tobacco. Little is known about the prevalence of use among university students in Western Australia and their attitudes toward e-cigarettes. There is growing evidence that e-cigarette vapour is not safe and can lead to serious health problems. Of particular concern is the popularity of these devices among younger populations, especially considering how little is known about the content of thee-liquid and the flavours, as well as the long-term health impacts This study aims to investigate the use of and attitudes toward e-cigarettes among Western Australian university students with different socioeconomic background.

EXAMPLE PAPER THAT REFLECTS THE PROJECT/ TOPIC

- Soneji, S., Barrington-Trimis, J. L., Wills, T. A., Leventhal, A. M., Unger, J. B., Gibson, L. A., Yang, J., Primack, B. A., Andrew, J. A., Miech, R. A., Spindle, T. R., Dick, D. M., Eissenberg, T., Hornik, R. C., Dang, R., & Sargent, J. D. (2017). Association between initial use of e-cigarettes and subsequent cigarette smoking among adolescents and young adults: A systematic review and meta-analysis. JAMA Pediatrics, 171 (8), 788-797. doi.org/10.1001/jamapediatrics.2017.1488

GENERAL METHODOLOGICAL SUMMARY

This study will comprise *a* random sample of university students. Participants will be asked to complete an online anonymous questionnaire about their use of and attitude towards e-cigarettes. The study will involve quantitative method for data analysis.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Ethics approval required

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

The research project will offer students the opportunity to apply their knowledge and technical skills in *a* supervised research project. They will further develop their skills in problem-solving, critical thinking capacities in the context of research, communication skills and the ethical approval processes. Knowledge in quantitative research methods and data analysis.

NUMBER OF STUDENTS FOR PROJECT

1

PSYCHOLOGY PROJECTS

PROJECT TITLE

Health outcomes After Release from Prison: a multi-jurisdictional, prospective cohort study

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Darcy Coulter - darcy.coulter@curtin.edu.au
Secondary Supervisor: Prof Stuart Kinner - stuart.kinner@curtin.edu.au

PROJECT BACKGROUND & OBJECTIVES

People who experience incarceration are distinguished by a high prevalence of complex, co-occurring health needs that often interact in a syndemic fashion, and are set against a backdrop of entrenched, inter-generational disadvantage. Rates of mental illness, substance use disorder, cognitive disability, infectious disease, and non-communicable disease are markedly higher among people in prison than in the general community. Despite this, evidence regarding the health-related needs of people in prisons is piecemeal and limited, with the bulk of studies emerging from the US and many suffering from small convenience samples and a narrow focus on one health issue (e.g., mental illness, HIV, injecting drug use).

The Health After Release from Prison (HARP4) study is the world's largest prospective cohort study of health outcomes for people who experience incarceration. The cohort includes 4,135 adults (1,493 Indigenous, 873 female) recruited in prisons in Queensland, Western Australia, New South Wales, and Victoria. Data from detailed baseline interviews and abstracted information from prison medical records have been linked, retrospectively and prospectively, with administrative health and correctional records, providing a median of 9.3 years of follow-up. Survey domains include socio-demographic information, physical and mental health status, substance use and other health risk behaviours, social support, and plans and expectations regarding release. Administrative health records include statewide ambulance, emergency department, hospital, ambulatory mental health, alcohol and other drug treatment, notifiable disease, Medicare, PBS, and death records.

This Honours project will involve cross-sectional analysis of baseline data for the cohort, which may include survey data, prison medical records, and/or variables derived from retrospectively linked administrative health and correctional records. Specific research questions will be developed in collaboration with the student. Students will be expected to have some experience with quantitative data analysis, although some training in the appropriate methods will be provided by the supervisory team. Students will be expected and supported to adapt their thesis for publication in an appropriate peer-reviewed journal, with a quality manuscript to be submitted to a journal within six months of thesis submission.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Kinner SA, Wang EA. The case for improving the health of ex-prisoners. Am J Public Health 2014; 104: 1352–55
- Kinner SA & Young JT (2018). Understanding and improving the health of people who experience incarceration: An overview and synthesis. Epidemiologic Reviews, 40(1), 4-11

GENERAL METHODOLOGICAL SUMMARY

Quantitative analysis of cross-sectional survey data

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Students must have strong quantitative skills, ideally including hands-on experience working with a stats package such as SPSS or Stata. Statistical methods will depend on the project but will likely include producing descriptive statistics, cross-tabs (chi-square), and multivariable regression (linear and/or logistic).

NUMBER OF STUDENTS FOR PROJECT

1 - 2

PROJECT TITLE

What are Australian prisons actually like? An analysis of Reddit Posts

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor: Dr Sarah Pellicano - sarah.pellicano@curtin.edu.au
Secondary Supervisors: Dr Darcy Coulter, Lindsay Pearce, Alexander Campbell, Prof Stuart Kinner

PROJECT BACKGROUND & OBJECTIVES

Understanding the lived reality of imprisonment in Australia is important for people at risk of incarceration, health and prison administrators, and policymakers. Although state and federal governments collect and publish routine statistics on the health of prisoners, these data provide limited insight into everyday experiences that determine the health of prisoners. This includes cleanliness, food quality, sexual or physical violence, and the rules that govern daily life in prison.

Reddit provides a valuable avenue for exploring these health determining experiences. As one of the most widely used websites globally, it is a popular forum for discussing stigmatised topics. Users post content in subreddits dedicated to specific themes. This has generated a repository of first-hand perspectives on what incarceration is like, including from former prisoners, prison staff, and prison healthcare staff.

Students on this project will gain access to candid accounts of in prison that are rarely captured in official statistics or traditional research. They will have scope to focus on specific demographic groups, health conditions, or determinants of health. This project will involve learning to capture and analyse unstructured internet health data, an increasingly important area in psychological and health research.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

- Content analysis (qual/quant): https://doi.org/10.1080/10810730.2022.2157911
- Thematic analysis (qualitative): https://doi.org/10.1145/3491102.3502076
- Sentiment analysis (quantitative): https://doi.org/10.1016/j.jiph.2021.08.010

GENERAL METHODOLOGICAL SUMMARY

Meta-regression.

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

No

ETHICS

Does not require ethics approval (does not involve humans or animals)

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Ability to work independently on complex tasks

Willingness to learn new analytical techniques under guidance of your supervisors

Interest in health equity, forensic mental health, or digital health research

NUMBER OF STUDENTS FOR PROJECT

2

PROJECT TITLE

Whose Glaucoma is getting worse?

SUPERVISOR/S & CONTACT DETAILS

Primary Supervisor Prof Andrew Turpin - andrew.turpin@curtin.edu.au
Secondary Supervisors: Prof Allison McKendrick-
Allison.mckendrick@uwa.edu.au

PROJECT BACKGROUND & OBJECTIVES

Glaucoma is an eye disease that leads to progressive vision loss over time due to the death of retinal nerve cells. As part of a longitudinal data collection (hIPPOS study), we have been collecting data every three months on 140 eyes with diagnosed glaucoma. In this project the first two years of data will be analysed using existing (and possibly novel) metrics looking for change in vision or changes in retinal structure. For each eye there are 6 time points, with each time point having small images (52 pixels) and large images (~1m pixels) that capture vision and retinal structure. These images are from different machines and have a non-trivial spatial mapping to link the pixels in each modality. This project would involve R or Python scripting to manipulate data, a moderate level of statistics such as linear mixed models, and could lead to a publication if the work is of high quality.

EXAMPLE PAPER/s THAT REFLECTS THE PROJECT/ TOPIC

https://www.tandfonline.com/doi/full/10.1080/08164622.2024.2316002

https://pmc.ncbi.nlm.nih.gov/articles/PMC8404957/

GENERAL METHODOLOGICAL SUMMARY

Quantitative

APPROPRIATE FOR A PSYCHOLOGY HONOURS STUDENT?

Yes

ETHICS

Project already has ethics approval

ESSENTIAL SKILLS/ PRE-REQUISITE/ REQUIREMENTS OF STUDENT

Experience with basic statstics and data manipulation would be beneficial.

NUMBER OF STUDENTS FOR PROJECT

1

Contact

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