

Summer Research 2017/18 Project List



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

FACULTY OF ARTS & SOCIAL SCIENCES:	PROJECTS 1 – 9a
Psychology	
Linguistics	
Phraseology (Spanish)	
Digital Technologies	
FACULTY OF COMPUTING & MATHEMATICAL SCIENCES:	PROJECTS 9b - 11
Computer Science	
Statistics	
Crime Science	
FACULTY OF EDUCATION:	PROJECTS 12 -14
Professional Education	
Information and Communication Technology	
FACULTY OF SPORT, HEALTH & HUMAN PERFORMANCE:	PROJECT 15
Health, Sport and Human Performance/Marine Studies	
FACULTY OF SCIENCE & ENGINEERING:	PROJECTS 16 - 31
School of Engineering	
School of Science	
ENVIRONMENTAL RESEARCH INSTITUTE	PROJECT 30- 31
Biology	
Freshwater Ecosystems	
FACULTY OF MĀORI & INDIGENOUS STUDIES:	PROJECT 32 - 34
Māori & Indigenous Studies	
Te Reo Māori	

TE KOTAHI RESEARCH INSTITUTE:	PROJECT 35
Māori Development	
WILF MALCOLM INSTITUTE OF EDUCATIONAL RESEARCH	PROJECTS 36 - 37
Adult Literacy and Numeracy Education	
WAIKATO MANAGEMENT SCHOOL:	PROJECTS 38 - 42
Economics	
Populations Studies	
International Management/Strategy	
Health and Social Science	



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 1
Supervisor/s:	Bridgette Masters-Awatere	
Project Title:	Hospital Transfers: whanau involvement in the healing equation	
Faculty:	FASS	Field: Health Psychology

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. A research report to contribute to a journal article manuscript on Hospital Transfers for Maori2. Refinement of a broad research question that will support development of a funding proposal to an external agency (eg. Ngā Pae o te Māramatanga, DHBs, HRC, Cancer Society, Marsden)

STUDENT TASKS:
<ol style="list-style-type: none">1. Develop an online survey for hospital transfer stakeholders/key services2. Submit an ethics application (within the School of Psychology)3. Undertake the survey analysis (including producing basic descriptive statistics)4. Prepare a draft report on the findings

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Familiarisation with the School of Psychology ethical review process2. Ability to design, manage safely, and analyse an online survey3. Confidence to recruit survey participants from a range of agencies, sectors4. Ability to draw on national demographic datasets to provide broader context of the findings from the survey5. Present pertinent information from surveys in a succinct and meaningful manner for a general audience (reviewing similarities, identifying themes, discussing and collaborating to verify themes, coding data and extracting examples)6. Write research findings (learning key skills for presentation of information to different audiences)

PROJECT ABSTRACT:
<p>Publicly-funded hospitals are large healthcare institutions with specialised staff and technologies where people are referred for care or present for acute care in the case of emergencies. Hospitals can be anxiety-raising environments with unfamiliar routines, practices and encounters that can be at times intimate, strange and intrusive. Multiple people are involved throughout a patient's interaction with hospital healthcare.</p> <p>Our aim in this project is to understand and positively influence the interface between whānau and hospitals in order to present a roadmap of ways to facilitate active involvement in achieving the best wellbeing outcomes for hospitalised whānau members.</p>

PROJECT ABSTRACT:

We have heard from patients and their family who have been transferred to Waikato hospital for treatment. We would also like to hear from key services who are involved with supporting whānau and patients during an 'away from home' hospitalisation, to better understand the context for whānau and issues for services.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 2
Supervisor/s:	Andreea Calude, Hemi Whaanga and Te Taka Keegan	
Project Title:	Māori Borrowings in Science Digital Media	
Faculty:	FASS	Field: Linguistics, Māori, Digital technologies

EXPECTED OUTCOMES:

1. Building the corpus - We expect to create a small body of digital science discourse data (that is, a linguistic corpus) containing a number of Māori borrowings. The corpus will be annotated for scientific discipline (biology, chemistry, environmental science, marine biology, etc.).
2. Some results - We will extract a complete list of Māori borrowings used within each sub-corpus and their associated frequency of use. Each borrowing will be coded for cultural/core distinction and for whether or not it constitutes a specific term relating to a given scientific discipline.
3. Comparisons - We will make comparisons between the use of the borrowings in the Digital Scientific Corpus and previously coded and analysed borrowings in the Wellington Corpus of Spoken NZE (Calude et al, In press/2018), and borrowings in the Wellington Written Corpus (Kennedy 2001).
4. A journal article - We anticipate that our results will be summarised in the form of a written journal article to be submitted for publication in a peer-reviewed journal.

STUDENT TASKS:

1. INITIAL STEPS find and archive National Science Challenge websites and their thematic groups, their Twitter feeds, and all Scieblogs entries (with our assistance) (we will guide the student here), some programming knowledge might be useful here but not required.
2. CORPUS SET-UP set up a corpus using appropriate Markup Language and learn how to organise the files appropriately so that they can be searchable, divide the corpus data into three sub-corpora: Internet pages, Twitter feeds, Blog entries.
3. DATA-CODING identify the use of all Māori borrowings in the Digital Science Corpus set up in task 2, and extract them to an Excel spreadsheet. Code each loan for various features (cultural vs. core, specific significance for certain scientific disciplines), we will also help with this.
4. TRENDS identify trends in the data, how do the three sub-corpora compare to each other? Do we see the same Māori borrowings being used over and over again or are there different ones, depending on sub-corpus (Internet pages, Twitter, blogs) or discipline?
5. RESULTS develop (in conjunction with us) comparisons within our data but also with other linguistic genres (in particular, spoken New Zealand English and written New Zealand English), we will provide the relevant readings and data here; and develop interesting visual ways of representing the compar
6. PAPER draft up a report of the findings which would serve as a starting draft for an article for a peer-reviewed journal (under our guidance).

REQUIRED SKILLS:

1. Good language skills, excellent (New Zealand) English ability, ideally be native or near-native; and willingness to work as part of an inter-disciplinary team.
2. Good computer literacy skills, excellent knowledge of trolling Internet sites, using Twitter feeds, and blogs, ability to use Excel, and willingness to learn how to use other software packages, possibly R (statistics), programming knowledge would be a bonus.
3. Ability to pay attention to detail and maintain good accuracy and focus in coding data, especially when extracting all the Māori borrowings from the corpus data.
4. Analytical skills in being able to extract patterns and make comparisons, willingness to be creative and have fun with data visualisation tools.
5. Bonus: knowledge in / interest in Te Reo Māori.

PROJECT ABSTRACT:

Our language is the reflection of ourselves. A language is an exact reflection of the character and growth of its speakers. Cesar Chavez.

If Chavez is right, and he surely must be, what can we see mirrored in our unique variety of English? New Zealand English (NZE) is a blending of cultures, identities, ideas, knowledge and histories. It constitutes one of the youngest varieties of English spoken on earth. NZE is distinct from Australian English, but shares similarities with it, and it is divergent from British English, though it has its roots in a number of various British English dialects which gave rise to it. One of the most salient characteristics of NZE is the steady flow of words of Māori origin (Māori borrowings) which are used by both Māori New Zealanders and by Pākehā New Zealanders alike.

The use of Māori borrowings has come under a lot of scrutiny over the years, with early studies dating as far back as the 1940s (by Anderson and Baker). We know, for example, that we are using more Māori borrowings today than we ever did before, with 6 in every 1,000 being of Māori origin. We also know that the borrowing process took place in a number of 'waves', and that each wave privileged different types of lexical items. And we know that we use these words in spontaneous conversation, newspaper language, novels and fiction, (to some more extent) TV language, lectures and teacher monologues and talkback radio. An area that is completely absent from the research landscape on Māori borrowings is that of digital technologies: Internet language, Twitter, Facebook and other social media.

This project is part of a larger Marsden-funded project (2017-2019) on Māori borrowings and their use in New Zealand English. The rationale for the proposed study is to investigate the use of Māori borrowings in digital discourse and address the current gap in the literature. More specifically, we seek to find all Māori borrowings used in scientific discourse on the pages of the (1) National Science Challenge themes and (2) their associated Twitter feeds, and (3) all Scieblog entries. We will ask four main questions:

- (1) Which loanwords are used?
- (2) How might we classify them (cultural loans vs. core loans, cf. Myers-Scotton)?
- (3) How does the use of these loans compare with the loans we find in other genres?
(i.e., is there a large amount of overlap or are there specific domain-specific terms being used)?
- (4) What function in the discourse do these loanwords have (why are they used)?

If time permits, we would also like to explore the possibility of comparing the semantic profile of the most widely used loans against their original semantic uses in Te Reo Māori .



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 3
Supervisor/s:	Maryanne Garry	
Project Title:	Do people have symptoms about imagined, hypothetical, future events? Examining the evidence for pre-traumatic stress disorder.	
Faculty:	FASS	Field: Psychological Science

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Publications2. Possible groundwork for external funding

STUDENT TASKS:
<ol style="list-style-type: none">1. Working seriously, consistently, and enthusiastically, on an international team2. Helping develop materials3. Helping to collect data4. Helping to analyse and interpret data5. Presenting data in project meetings6. Conducting literature searches7. Reading scientific literature critically and discussing it at project meetings

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Dedicated, focused, careful, responsible2. Skill on Macintosh desirable3. Decent stats background4. Good background in cognitive psychology desirable

PROJECT ABSTRACT:
<p>Sometimes when people experience a traumatic event, they go on to develop post-traumatic stress disorder (PTSD). These people suffer unpleasant symptoms related to their memory of the trauma, such as negative, vivid recollections of the event intruding into consciousness.</p> <p>Traumatic events are not the only ones people relive, though. Sufferers of PTSD and healthy people alike are able to mentally re-experience all sorts of past events. Not only that, people are able to vividly pre-experience all sorts of events that may happen to them in the future. And a large body of research shows that these abilities “mentally travelling backwards and forwards in time” are closely related, drawing on the same underlying mental processes.</p>

PROJECT ABSTRACT:

Taken together, this research suggests that people could experience symptoms in relation to anticipated negative events that have yet to happen. Indeed, although people largely imagine positive events when thinking about the future, two recent findings fit with the idea that people may experience “pre-traumatic stress” symptoms in relation to negative future experiences. In one study, prior to an extended period of deployment soldiers were asked if they had been experiencing “pre-traumatic stress” symptoms about future experiences in general, which many of them had, and what is more, the level of pre traumatic distress they reported predicted later development of post-traumatic stress disorder symptoms after they had returned from deployment.

In another study, when students were asked to imagine negative future events, and then further imagine those events had now happened, they gave very high ratings of post-traumatic symptoms they thought they would experience after those events, as compared to the levels of symptoms they reported experiencing in relation to negative events that had actually happened to them, even though the past memories were more vivid.

But what neither of these studies can tell us is to what extent people in daily life experience current PTSD-like symptoms in relation to specific anticipated events and, if so, what those imagined future events are like. To investigate these issues, we will ask subjects to tell us about a negative future event they have imagined experiencing, and ask them to make ratings about the characteristics of this event, such as how vivid it is. Then they will rate the degree to which they have experienced various “pre-traumatic stress”-like symptoms in relation to this event, such as having thoughts about it intrude into consciousness. We will then examine the types of future events people report, and the relationship between the characteristics of these events and the frequency of symptoms that people experience in relation to them.

We expect that many of the same characteristics of real traumatic memories that are associated with PTSD, will also have a relationship with pre-traumatic stress caused by negative imagined future events. Our results will provide valuable insight into factors that have a role in causing and maintaining PTSD, and tell us more about a seemingly unusual class of thoughts about the future.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 4
Supervisor/s:	Maryanne Garry	
Project Title:	How do people appraise fragmented memories?	
Faculty:	FASS	Field: Psychological Science

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Publications2. Possible groundwork for external funding

STUDENT TASKS:
<ol style="list-style-type: none">1. Working seriously, consistently, and enthusiastically, on an international team2. Helping develop materials3. Helping to collect data4. Helping to analyse and interpret data5. Presenting data in project meetings6. Conducting literature searches7. Reading scientific literature critically and discussing it at project meetings

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Dedicated, focused, careful, responsible2. Skill on a Macintosh desirable3. Decent stats background4. Good background in cognitive psychology desirable

PROJECT ABSTRACT:
<p>Traumatic memories have a secret life. Victims of trauma often describe their memories as fragmented, jumbled, incoherent, recalled in bits and pieces. Yet over time, those memories fill out, becoming more coherent and gaining detail. The pseudoscientific view is that fragmentation is harmful: It is caused by the special way trauma is encoded, but eventually resolves usually in therapy as 'traumatic amnesia' fades. But there is no scientific evidence that the harm, the special mechanism, nor the 'traumatic amnesia' actually exist. More likely is that the way people make sense of their early attempts to recall traumatic experiences sets in motion a chain of behaviours that shape their memories. We will try to connect the links in this chain by answering a fundamental question: How do people appraise fragmented memories?</p>

PROJECT ABSTRACT:

Remarkably, it has never been addressed in the scientific literature. We know that when people first try to recall a traumatic memory, it feels fragmented, but we hypothesise that's not because the event was traumatic, but because recalling almost any memory in depth is surprisingly difficult. This difficulty biases people to notice fragmentation, but they see it as a problem only when memories are traumatic. We will ask people to recall personal memories that are either traumatic or non-traumatic, but matched on remaining characteristics, the gold standard in cognitive research. In a later study, we will obtain memories experimentally, using the well-established trauma analog paradigm. In both studies, we predict that people will rate memories, traumatic or not, as similarly fragmented and difficult to recall. But when (and only when) memories are traumatic, we expect people to regard fragmentation negatively, as a sign of unresolved psychological dysfunction.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 5
Supervisor/s:	Laura Lopez Fernandez	
Project Title:	What is in a Word? A cross-linguistic phraseological project in Māori-Galician-Spanish-English	
Faculty:	FASS	Field: Phraseology (Spanish)

EXPECTED OUTCOMES:

1. A peer review study in a Phraseological European Journal (Europhras, Cadernos de Fraseologia Galega, etc)
2. A book chapter as part of a larger project.

STUDENT TASKS:

1. Collect, transcribe or copy sayings and proverbs of selected words from old and recent spoken texts.
2. Register chronology of proverbs and additional info such as variants of meaning, and explanations from authors.
3. Use Excel to fill out entry data in specific columns that will be provided.
4. Give complete references of sources in APA or other required reference style.
5. Consult specialists in Maori proverbs if needed.

REQUIRED SKILLS:

1. Ideally, Knowledge of Maori
2. Required: Knowledge of Spanish
3. Show interest in proverbs

PROJECT ABSTRACT:

This project sets out to collect, describe, compare and analyze proverbs, sayings and phrases from the domain of spirituality and religion, in four languages: Māori, Galician, Spanish and English. Mapping across domains facilitates research on comparative cultural studies.

The research assistant will work with a selected list of lexical units in specialized corpora of spoken language and other types of written texts in Maori, Spanish and English. The proverbs or whakataukā containing those words will be copied in separate entries for each language, in Excel.

PROJECT ABSTRACT:

It is also important to include the chronology of those proverbs, when given, so we can track semantic changes through time. Some of the lexical units from the above mentioned fields include mana, atua, wairua, awe wairua, tapu, whakapapa (Māori); alento, Ājnima, alma, espã-ritu, azos, enerxã-a, folgos (Galician); soul, power, spirit (English); alma, Ājnimas, espã-ritu, energã-a (Spanish). As a frame of reference, canonical definitions of selected lexical units will be provided. We must note that in some cases there are no equivalent meanings in all the languages.

The comparative phraseological data will be extracted from digitized linguistic corpora, diachronic corpora, dictionaries, glossaries, thesaurus, lists of vocabulary, and private and public compilations relevant to the lexical units selected for the study.

Some sources include digitized spoken Galician corpora such as CORILGA (Corpus Oral Informatizado do Galego), Arquivo do Galego Oral (AGO), Portal de Ditados Topicos Galegos, Tesouro do Lexico Patrimonial Galego e Portugus, Biblioteca Dixital da Galicia Medieval , Recursos Integrados da Lingua Galega. In English, we will use Thesaurus of Old English, Linguistic Corpora. In Spanish we will consult CORDE (Corpus Diacrãnico del español), Corpus del español de Mark Davies. In Māori we will consult MAI Glossary of Maori Proverbs, Sayings and Phrases, The Wellington Corpus of Spoken New Zealand English: a Users' Guide. Holmes, J., Vine, B. & Johnson, G. (1998), Te Aka Māori bilingual dictionary, Ngata bilingual dictionary, Traditional Maori Proverbs.

In the next phase of the project, I will analyze the figurative and functional uses (metaphoric, metonymic, pragmatic meaning) of those units in context as well as major semantic changes through time. We must note that words have multiple meanings, depending on the context and the purpose they are used for (Matthews 1991). The results may reveal a partial or a total loss of meaning in certain words-contexts, additional meanings in specific words or no semantic changes at all. Semantic correlations in both languages will be also investigated. In this context, we can use different theoretical approaches. For instance, the theory of Meaning Holism (Pagin 2006) treats the meanings of all the words in a language as interdependent, therefore if the meaning of one word changes, the content of some of the semantic inferences and beliefs of other words in the language, change too, and so a change in the meaning of one term leads to a change in the meaning of the rest. In this theory, understanding is considered holistic. Other theorists such as the semantic atomists would interpret change of meaning in words as causal, prioritizing the functions of each determinant of meaning for each word. Regardless of the theoretical frame we take, this unique project may serve as a reference study in further phraseological studies



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 6
Supervisor/s:	Nicola Starkey & Laura Stratton (Waikato DHB)	
Project Title:	Driving after a stroke: a survey of advice given to patients.	
Faculty:	FASS	Field: Psychology

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Identify gaps in the provision of return-to-driving information2. Identify when, and how, to best provide return-to-driving information3. Produce recommendations about the systematic provision of return to driving information for patients post-stroke

STUDENT TASKS:
<ol style="list-style-type: none">1. Assist with contacting potential participants2. Administering questionnaires over the phone or in person3. Data entry and analysis4. Attending weekly meetings at the DHB / University5. Reviewing the relevant literature

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Highly organised and conscientious2. Good interpersonal skills3. Experience of recruiting participants4. Able to develop rapport with older people5. Compassionate and understanding6. Trustworthy and reliable7. Ability to work unsupervised, and works well as part of a team

PROJECT ABSTRACT:
<p>Driving is one of the most common forms of transport for older people in most Western Countries, and as the proportion of the population aged over 65 years increases, we are going to see more older drivers on the road. Ageing is accompanied by an increase in various medical conditions, including stroke, and providing appropriate advice about when to return to driving post-stroke is crucial for the stroke survivor to maintain their independence, and for the safety of other drivers, pedestrians and cyclists.</p>

PROJECT ABSTRACT:

As part of a collaborative project between the University of Waikato and the Institute of Health Ageing at Waikato District Health Board, we are currently conducting a study examining health professionals knowledge of driving restrictions post-stroke, as well as who typically provides this advice. The next part of the project (assisted by the successful summer scholarship student) is to investigate the patient's perspective of the provision of return-to-driving information in the hospital/ rehabilitation setting, how they used this information and if or when they returned to driving. We will identify a cohort of stroke patients who have been discharged home from Waikato hospital, and approach them to complete a survey (either online, by post, over the phone or in-person) of their post-stroke driving behaviour.

The findings from the study will determine if, and where, gaps exist in the provision of return-to-driving information for stroke survivors, as well as helping us to understand when, and how, to provide the information. The study will be used to inform recommendations about the systematic provision of return-to-driving information for patients post-stroke.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 7
Supervisor/s:	Dan Weijers	
Project Title:	Happiness and the good life: Testing a new mixed methods approach	
Faculty:	FASS	Field: Interdisciplinary (experimental philosophy/psychology/happiness studies)

EXPECTED OUTCOMES:

1. Proof of concept: Deconstructive Replication
2. Complete user guidelines (published on my website): Deconstructive Replication
3. Literature review: qualitative data analysis focusing on analysis of responses to vignettes
4. Paper for journal submission on the new methodology: Deconstructive Replication (at least considerable progress)
5. Paper/s for journal submission on applications of Deconstructive Replication (at least considerable progress)

STUDENT TASKS:

1. Qualitative data analysis (using a pre-existing taxonomy)
2. Qualitative data analysis (generating new taxonomies)
3. Researching qualitative data analysis methodologies
4. Critiquing qualitative data analysis methodologies
5. Critiquing and developing qualitative data analysis usage guidelines
6. Quantitative data analysis (depends on skill level)
7. Co-writing research papers on the new method (depends on skill level)
8. Co-writing research papers on applications of the method (depends on skill level)

REQUIRED SKILLS:

1. Responsible
2. Honest
3. Critical thinking
4. Creative thinking
5. Logic (preferable)
6. Qualitative data analysis (preferable)
7. Research (preferable)
8. Quantitative data analysis (preferable)

PROJECT ABSTRACT:

Philosophers and psychologists use vignettes, short descriptions, of people's lives to find out what people think makes a life go better for the person living it. For example, research participants may be presented with descriptions of two lives, one short and very happy and the other long and mildly happy, and then asked which life they would prefer. Widespread preference for the short happy life is consistent with the notion that people care more about being very happy than living for a long time.

In recent years, there has been an increase in criticisms of the use of these kinds of vignettes. Critics worry that respondents might not understand or be fully complying with the stipulations in the vignettes. This worry is magnified by the emerging evidence that experiments can't easily tell when their respondents understand and comply with the stipulations in the vignettes. In response to these worries, it is imperative to create a method for assessing the task-suitability of vignettes' a way to test whether a vignette is really drawing out the specific judgment experimenters intended.

I am developing a method 'Deconstructive Replication' that can assess the task-suitability of vignettes. Deconstructive Replication uses quantitative and qualitative techniques to assess vignettes' fit for purpose and provide systematic evidence that can be used to refine the vignettes in a way that should make them more fit for purpose. The method can also be used iteratively to ensure that refined versions of the vignettes are in fact improvements.

I need help applying the method, and considering potential refinements to it and usage guidelines for it. All of the research uses vignettes about happiness and the good life. As a result, the research has important implications for happiness studies, as well as the areas of wellbeing and methodology in philosophy and psychology.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 8
Supervisor/s:	Timothy Edwards & Clare Browne	
Project Title:	Canine scent detection: How does target prevalence influence accuracy?	
Faculty:	FASS	Field: Psychology

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Accuracy and other relevant data (including video footage) associated with different target prevalences for each dog.2. Meaningful graphical, tabular, and statistical summaries and analyses of such data that would be appropriate for inclusion in a manuscript prepared for publication.

STUDENT TASKS:
<ol style="list-style-type: none">1. Chemistry lab: prepare dilutions, maintain clean and tidy storage space, clean all equipment as specified (after they have completed appropriate induction and training)2. Canine facility: Intake and release of dogs and care of dogs, following standard operating procedure3. Canine facility: Running experimental sessions, ensuring that equipment is functioning normally and that data are being recorded accurately4. Canine facility: Cleaning of apparatus and facility as specified in standard operating procedure5. Data analysis and summary with support from canine research team6. Dilutions are typically made once per week and experimental sessions conducted 2-3 times per week. Student researchers are also expected to attend and participate in weekly lab meetings.

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Relevant coursework and/or experience in behavioural science2. Relevant coursework and/or experience in research design and data analysis3. Basic computer skills, including ability to use spreadsheets and graphing tools4. As the student researcher will be expected to work with dogs, some familiarity with or at least willingness to work with this species is important (including willingness to walk and clean up after the dogs)

PROJECT ABSTRACT:
<p>Scent-detection dogs are used in a wide variety of contexts, including border security and conservation applications. Many applications require dogs to evaluate discrete units, such as individual people, suitcases, or samples of some type of material. The dogs are trained to make an identifiable indication response, such as sitting, in the presence of a 'target' (e.g., a suitcase with explosive material) and not to make the indication response in the absence of the target (e.g., a suitcase with no explosive material).</p>

PROJECT ABSTRACT:

One variable that is likely to influence the accuracy of scent-detection dogs working in this type of arrangement is the proportion of discrete units that are 'targets'. If there are many targets, dogs appear to adopt a more 'liberal' criterion, meaning that they indicate many units as 'targets' even though they are not targets (i.e., they emit false indications). If there are very few targets, they appear to adopt a more 'conservative' criterion, meaning that they often fail to emit the indication response in the presence of targets (i.e., they miss targets).

Though the influence of target prevalence has been systematically examined with other species working in other kinds of signal-detection tasks, it has not been confirmed with scent-detection dogs evaluating discrete units. This project is part of a series of basic and applied studies that are being conducted at a canine research facility on the University of Waikato campus. This target prevalence research has important implications for the other basic and applied scent-detection research projects that are currently being conducted and those that are planned for the future. For example, one applied project that is in preparation involves using samples from individuals with and without lung cancer and training the dogs to indicate only those that come from individuals who have been diagnosed with lung cancer. The target prevalence to be used in this study is partially determined by the prevalence of targets in anticipated operational scenarios, but the prevalence can be adjusted depending on the outcome of the proposed target prevalence research project.

This research project will consist of systematically exposing approximately five dogs to a variety of target prevalences. Targets will consist of standard chemicals, such as amyl acetate, at specified dilutions. The automated apparatus that will be used in this study presents samples to the dogs, delivers reinforcers, and collects data, but the student researcher will be required to extract the data and summarize it in a meaningful way. Ethical approval for this project has already been obtained, so the student researcher will be added to an amended ethics application and provided with appropriate training in order to conduct sample preparation and experimental procedures. The student researcher will also be expected to work with dog owners on intake and release at the laboratory, care for dogs at the laboratory, and provide owners with relevant updates following all standard operating procedures developed for the canine research laboratory.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 9a
Supervisor/s:	Devon Polaschek	
Project Title:	Evaluating the effects of non-violence programmes for family violence perpetrators: A review of indices of progress during and after interventions	
Faculty:	FASS	Field: Crime Science/Psychology

EXPECTED OUTCOMES:

1. A pile of research reports and scales and measures used in previous research
2. A written report with detailed appendices and recommendations for the research design
3. A student with a growing interest in the psychology of criminal behaviour
4. A student with more developed skills in the indicated areas

STUDENT TASKS:

1. Identifying previous relevant published theory and research
2. Tracking down and obtaining relevant "grey literature" (i.e., unpublished) from agencies, researchers and providers
3. Reviewing the results of these searches
4. Developing a structure for reporting the results
5. Writing up the review in a form that can be used for the anticipated project
6. Possibly taking part in presenting the findings to interested third parties such as non-governmental agencies

REQUIRED SKILLS:

1. Strong skills in evaluation of quantitative and qualitative scientific research for quality of design and findings
2. Open-mindedness and curiosity
3. Analytic skills: the ability to distinguish the wood from the trees (i.e., figure out what matters and what doesn't)
4. Strong writing skills: the ability to distill findings in plain language for a range of audiences
5. Personal organisation, initiative, reliability, conscientiousness, good emotional regulation
6. A sense of humour and tolerance for uncertainty
7. Mental flexibility and creativity
8. Responsive to feedback and supervision: Sees feedback as an exciting opportunity for personal and professional growth and development
9. Compassion and interest in understanding offenders

PROJECT ABSTRACT:

Perpetrators of family violence are referred to non-violence programmes as part of their order or sentence. But international research suggests these programmes have little or no effect on future violence, and little is known about whether or how those who attend these programmes respond to or are changed by the experience.

This project will review the theoretical and research literature to identify promising factors and measurement tools that could be used to evaluate programme effects.

The findings will contribute to the planning for a large research project on perpetrators of family violence and what helps with desistance.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 9
Supervisor/s:	Vimal Kumar, Eibe Frank and Harris Lin	
Project Title:	Using system access patterns for device compromise detection	
Faculty:	FCMS	Field: Computer Security/Machine Learning/Computer Security

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Identification of features suitable for distinguishing the users2. Identification of classification techniques with low false positives and negatives3. Application of classification techniques for anomalous pattern detection

STUDENT TASKS:
<ol style="list-style-type: none">1. Applying osquery to gather system access data2. Using supervised learning algorithms to extract patterns

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Background in Statistics2. Background in Computer Science3. Preferably should have taken COMP321 (Practical Data Mining)

PROJECT ABSTRACT:
<p>We use many computing devices every day (desktops, laptops, smartphones, tablets etc.). On each of our devices, we generally store a number of security credentials. For example we tend to save our passwords in our browsers to stay logged in. We might also store credit card details and other critical information for ease of use. However in the event that a device is compromised (either stolen or hacked by an intruder) the attacker gains all the credentials and can very easily impersonate a user. This is possible because after gaining access to the device, there is no second layer of security which binds a user's devices to the user.</p> <p>We postulate that every user has a unique pattern of system accesses when they use a device. We propose to use a user's system access pattern as a unique identity. In the case that a device is compromised, the attacker's system access pattern will differ from the original user's pattern. This information can be used to detect that the device has been compromised. Further, this detection can then be used to switch critical services off to limit the damage from the compromised device.</p>

PROJECT ABSTRACT:

As a first step towards this goal, in this summer project, we will tackle user identification as a multi-class classification problem to which we can apply supervised learning. Each user represents a 'class' and the task is to learn to discriminate between different classes based on system access behaviour. A plethora of supervised machine learning approaches exist in the literature but in this project we will focus on methods that extract interpretable models/patterns, such as decision trees and classification rules, because the objective is to obtain an understanding of what kinds of patterns can be used to distinguish between users.

The primary challenge will be to derive suitable features for machine learning from the raw input data so that standard algorithm implementations can be used. Each user access session must be converted into a fixed set of descriptor values that make up one example for learning. The label for this example is the user ID pertaining to the session. Condensing the raw data into meaningful descriptors that represent appropriate features for learning and discrimination will require obtaining a thorough understanding of the kinds of raw system access session data that can be collected with monitoring tools such as osquery.

During the course of the project, the student will learn about classification methods used in data mining and how to apply them in practice, based on a challenging real-world computer security dataset. The WEKA software will be used for learning classification models and the student will gain experience using WEKA for pre-processing data, applying learning algorithms for classification, and evaluating the output to establish whether useful information has been extracted. A significant part of the learning experience will be to render a relatively unstructured real-world dataset into a format suitable for applying classification techniques, including construction of appropriate features for machine learning.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 10
Supervisor/s:	Harris Lin & Shaoqun Wu	
Project Title:	Pattern Detection and Analysis for Police Incident Reports	
Faculty:	FCMS	Field: Computer Science/Crime Science

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Learned state-of-art natural language processing techniques2. Identified reporting patterns for crime prevention3. Software tool to facilitate pattern detection from incident reports

STUDENT TASKS:
<ol style="list-style-type: none">1. Data collection and cleaning2. Literature research on Natural Language Processing3. Textual feature extraction4. Unsupervised learning using textual features (e.g. Clustering)5. Trend analysis6. Charting and report generation7. Source code documentation and packaging

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Data mining2. Python and/or Java programming

PROJECT ABSTRACT:
<p>The project will investigate ways to analyse and identify trends in police incident reports such as family violence and cyber bullying. The outcome could be used for a range of policing applications including incident hotspot analysis, criminal profiling, crime prevention, and security awareness education. The project involves using data mining and natural language processing techniques to carry out text analysis and pattern extraction. Knowledge of data mining and solid programming skills are essential. You will experience with some text mining and natural language processing techniques using real world datasets.</p>

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 11
Supervisor/s:	Harris Lin & Shaoqun Wu	
Project Title:	Improving Netsafe's incident reporting system via data analysis	
Faculty:	FCMS	Field: Computer Science/Statistics

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Statistical summaries of Netsafe incident reports2. Recommendations for improving Netsafe reporting platform

STUDENT TASKS:
<ol style="list-style-type: none">1. Data collection and cleaning2. Generate statistical summaries from incident report data3. Identify trends based on statistical summaries4. Analyse summaries against the reporting platform5. Provide recommendations on the reporting platform

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Python/Java programming2. Statistics3. Data mining (optional)

PROJECT ABSTRACT:
<p>Netsafe is an NZ organisation that aims to promote safe and responsible use of Internet technologies. In this project, the student will evaluate and provide recommendations towards improving the current incident reporting platform of Netsafe. Student can expect to learn and apply skills in statistical methods, survey analysis techniques, and potentially other natural language processing techniques to analyse incident reports.</p> <p>The outcome of this project will also contribute towards the application of data mining techniques for pattern discovery. Knowledge of basic statistics and programming skills are essential.</p>

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 44
Supervisor/s:	Ryan Ko	
Project Title:	Use of SIEM (Security Information Event Management) to enhance our security monitoring and reporting	
Faculty:	FCMS	Field: Computer Science/Cyber Security

EXPECTED OUTCOMES:

1. Dashboard development
2. Presentation of same (system demo)
3. Documentation of the business rules applied

STUDENT TASKS:

1. Work with business to build a farming calendar
2. Identify activities that would typically occur at the various stages
3. Identify what analyses can be made that would be useful to farmers, given the data surfaced through the APIs
4. Develop a notification mechanism

REQUIRED SKILLS:

1. Interest in corporate network security
2. Good analytical skills.
3. Ability to work well with others within LIC

PROJECT ABSTRACT:

As part of LIC's continued focus on security, we wish to pull together data from numerous event sources. For example, firewall logs, authentication services, user workstation, email services, application monitoring.

The objective of this project is to utilise the information provided by the event sources to alert us to risks, threats and anomalies. The student will be based at LIC and get a rare opportunity to work alongside teams building cutting-edge Agritech software. This project is fully funded and sponsored by LIC.

ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 45
Supervisor/s:	Ryan Ko	
Project Title:	Enhanced presentation of Decision Making information to Farmers in MINDA	
Faculty:	FCMS	Field: Computer Science/Cyber Security

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Proof of Concept developed2. Presentation of same (system demo)3. Documentation of the business rules applied

STUDENT TASKS:
<ol style="list-style-type: none">1. Work with business to build a farming calendar2. Identify activities that would typically occur at the various stages3. Identify what analyses can be made that would be useful to farmers, given the data surfaced through the APIs4. Develop a notification mechanism

REQUIRED SKILLS:
<ol style="list-style-type: none">1. C#.NET2. Javascript (React)3. Good requirements gathering and analytical skills4. Ability to work well with others within LIC

PROJECT ABSTRACT:
<p>MINDA is our farmer facing herd management suite. It provides information to farmers about their herds and individual animals so that they can make better decisions on farm.</p> <p>To enable better and timelier decision-making we would like to explore a proactive 'push' of calls to action to farmers based on the farming calendar and the information we have about their herds.</p>

PROJECT ABSTRACT:

The objectives of this project are as follows:

1. Utilise the information provided by our APIs to identify when an action is indicated. This would analyse the farmers' data to detect potential issues in animal or pasture management.
2. Identify the times of year that seasonal activities should be undertaken.
3. Develop an extension to our MINDA product suite to combine the above as an enhancement to the information we provide our farmers for decision-making. This could surface as prompts or alerts.

The student will be based at LIC and get a rare opportunity to work on cutting-edge Agritech software. This project is fully funded and sponsored by LIC.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 12
Supervisor/s:	Chelsea Blickem & Bronwen Cowie	
Project Title:	Enabling and measuring success: Pre-degree students and their transition to degree study	
Faculty:	FEDU	Field: Education

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. What are the factors that enable students to succeed in the CUP programme2. What are the factors that enable CUP graduates to transition effectively to degree study, and to remain and be successful in degree study3. What does an analysis of students' background and academic history tell us about their likelihood to succeed in CUP and in degree4. What can degree teaching staff tell us about students from the CUP programme, and what are the gaps in learning, knowledge, skills, attitude that ex-CUP students appear to have as they transition to degree5. What influence does government policy have on teaching, learning and academic success for predegree students

STUDENT TASKS:
<ol style="list-style-type: none">1. Obtain and analyse statistical data on student cohorts (demographics, retention, attrition, progress, success)2. Assist with document analysis of relevant government education policy using critical discourse analysis3. Assist with the facilitation of student focus groups in CUP and from CUP now in degree study.4. Assist in the thematic analysis of student focus group data5. Assist with the facilitation of CUP teaching staff focus groups6. Assist in the thematic analysis of CUP teaching staff focus group data

REQUIRED SKILLS:
<ol style="list-style-type: none">1. quantitative / statistical data analysis experience and/or strong willingness to learn2. qualitative analysis experience in particular critical discourse analysis/document analysis/thematic analysis3. developed focus group facilitation experience4. empathy and open-mindedness for students in and emerging from the CUP programme, and an appreciation of the range of backgrounds that CUP students come from

PROJECT ABSTRACT:

This research will focus on the transition of students from the Certificate of University Preparation (CUP) programme to degree study at the University of Waikato. The study will examine factors for success in CUP, in transition and in degree, and will explore how stakeholders (students, lecturers, whanau, government) define and measure success.

We will examine demographic and statistical data, and collect data on student education histories and chosen paths of study. I will look at student and lecturer perspectives around student retention, attrition, progress, and the support available, and barriers to progress and success. Given the mixed CUP student cohort, and the increasing numbers of Māori and Pasifika students, I will look closely at how the programme and the university engages with communities and stakeholders, and what initiatives are and can be put in place to enhance the success of target and all student cohorts.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 13
Supervisor/s:	Elaine Khoo, Alvin Yeo and Arezou Zalipour	
Project Title:	Who does IT? Scoping the IT industry to inform university curriculum	
Faculty:	FEDU	Field: Information and communication technologies (ICTs), Information technology (IT), industry, business, university teaching and learning

EXPECTED OUTCOMES:

1. A compilation of IT/ICT companies within the Waikato region
2. A synthesis of the job profiles identifying the knowledge and skills required by ICT/IT employers/industry
3. A short report based on the analysis of the data that includes recommendations for improving the work placement preparation course.
4. A draft paper outline. The analysis of project findings will contribute to publications in journals. The contributions of the Summer Research scholar will be acknowledged in the authorship of related publications.

STUDENT TASKS:

1. You will be working under supervision to: Search available databases from the Chamber of Commerce, Registrar of Companies, etc. to identify and compile as list of Waikato-based ICT/IT companies. MBIE classifications may be used to guide this search.
2. Search different online job/employment platforms to scope and compile the range of job profiles in the ICT/IT industry to identify the kinds of knowledge, skills and dispositions required by employers.
3. Help to meta-analyse student evaluation data (survey and interviews) from a newly developed work placement preparation course in the Masters programme. Initial analysis and findings from the data will be shared with you for this purpose.
4. Help to prepare a short report of the outcomes of your analysis and make recommendations for course refinements based on the findings from Task 2 above to ensure greater coherence and fit between student learning on campus and in workplace contexts.
5. Help to draft a paper for publication.
6. Participate in research team meetings.
7. In this project you will experience an example of applied research, be equipped with qualitative research skills to pursue independent postgraduate research, see how your work can impact and inform university teaching and learning. You may also gain insights useful in terms of planning your career.

REQUIRED SKILLS:

1. Familiarity with online searches, with skills in the field of social sciences an advantage (guidance and support will be provided)
2. Good general word processing skills
3. Good communication and writing skills
4. Good time management and self-organisational skills
5. An ability to work in a team
6. A general interest in the comprehensive knowledge and skills graduates need to be successful in the workplace
7. Familiarity with qualitative data analysis procedures will be an asset but is not a prerequisite
8. As this is a cross-disciplinary project, it is open to applicants from science, social sciences or education background. Preference will be given to students from Management background although this not a prerequisite
9. Be based in Hamilton during the period of the summer research scholarship

PROJECT ABSTRACT:

What kinds of jobs can graduates with an information technology (IT) or information and communications technology (ICT) qualification do? What kinds of knowledge and skills do IT/ICT employers demand from today's IT graduates? Would 'geeky/techie' skills be enough to land that first job in the industry? How and in what ways can universities better tailor courses to fit industry needs and demands to ensure graduates can find jobs and be successful in the workplace? If you are interested in these issues then this Summer Scholarship project is for you.

This project is part of a current study by an interdisciplinary research team from Education, Computer Science and Course Development investigating ways to enhance student preparation for the work placement experience within the Masters of Information Technology programme. The Masters programme is a partnership between the University of Auckland and the University of Waikato with the goal to produce industry ready graduates and strengthen collaboration between tertiary education providers and industry. The project was motivated by the fact that:

Today's graduates are expected to have sound disciplinary knowledge and good generic skills (communication, teamwork, critical thinking) to be able to contribute productively to industries and society.

There is a need to strengthen university-industry links and partnership to ensure more effective student learning experiences and preparation for the workplace. The University of Waikato under the Curriculum Enhancement Project (CEP) is keen to establish future-focused curriculum that can respond to changing student, employment and societal needs.

There is an urgency to scope the kinds of knowledge, skills and dispositions valued by employers/industries as an initial step for informing and (re)designing more relevant university curricula, student learning and work placement experiences. This will help students to develop the important knowledge and skills to successfully face challenges in today's rapidly changing and complex workplaces.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 14
Supervisor/s:	Arezou Zalipour & Dilani Gedera	
Project Title:	Creating digital tertiary teaching development modules	
Faculty:	FEDU	Field: Education, Video production

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Completion of a small number of videos as tertiary teaching development resources/modules2. Transcribing a small number of interviews which will be conducted with the staffs who use/engage with the completed video modules3. A draft paper outline (If there will be sufficient time, we would like the Summer Research Scholar to help with preparation of a short paper based on a preliminary analysis of the interview data. The analysis will contribute to publications in journals)4. The project offers the Summer Research Scholar a truly creative and practical inter-disciplinary research environment, thereby offering the chance of experiencing all stages of the research process. The contributions of the Summer Research scholar will be acknowledged in the authorship of related research outputs.

STUDENT TASKS:
<ol style="list-style-type: none">1. Work with supervisors to carry out a literature search and collect relevant materials in relation to the subject/content of each video (guidance and support will be provided as required)2. Assist with shooting relevant footage for production (guidance and support will be provided as required)3. Assist with editing videos in consultation with supervisors4. Participate in team meetings and transcribe interviews5. Assist with a draft of a paper for publication6. Please note that the focus and scope of the above tasks will be negotiated with you depending on your skills and interests as well as available time-frame. To facilitate your learning and work experience, a template will be provided to clarify the components of your involvement.

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Video production skills including editing (essential)2. Ability to source, read and summarise relevant academic literature3. Writing skills4. Transcribing audio materials5. Good time management and self-organisational skills6. An ability to work in a team7. Be based in Hamilton during the period of the summer research scholarship

PROJECT ABSTRACT:

Have you ever thought that your own teachers at the university also study and reflect to become better teachers? They may participate in workshops or sessions related to 'tertiary teaching development' which are offered for them at the university or other places to discuss and share examples of effective teaching and learning. Imagine if they could engage with teaching development materials at any time, anywhere, and at their own pace. In this research project we intend to offer tertiary teachers a series of teaching development activities and resources in form of short videos. As a Summer Research Scholar, you will be primarily involved in making these videos.

The recent feedback from the tertiary teaching staff at the university shows that they prefer succinct, focused and practical teaching development resources and activities. The existing tertiary teaching development resources at the university are largely in form of booklets which are usually printed for those participating in the face-to-face teaching development workshops, or they can be downloaded by staff as a pdf file from the university's website. This summer scholar project is part of a larger project where, in addition to designing and developing a small number of video modules as interactive teaching development resources, we also evaluate the effectiveness of the video modules in supporting staff to challenge and broaden their conceptions of learning and approaches to teaching. We anticipate the project will offer practical outcomes to support the University of Waikato's Curriculum Enhancement Project (CEP) in which staff are encouraged to keep abreast of current and emerging pedagogies.

Using a variety of media-making tools in producing the video modules, this project aims to develop focused, succinct, self-directed and interactive video modules which incorporate current and innovative pedagogies. The video modules will cover a range of topics related to teaching and learning to ensure we meet our teachers' needs and interests. The video modules will be designed to combine the thinking process that takes place when designing and developing various aspects of teaching and learning, guided by voice-over, real-life scenarios, and staff interviews. In addition to assisting with making a small number of videos on selected topics, as the Summer Scholar you will be involved in the preliminary analysis of interviews which will be conducted with the staffs who use/engage with the completed video modules.

You will be working with an interdisciplinary research team who have video-making skills and experience. Having video editing skills is essential and we will provide training where needed in other areas. You will be supervised with care and attention to ensure your skills, knowledge and experience are largely enhanced as a result of participating in this project. We are interested in applicants' excellent video-making skills from any discipline. To facilitate your learning and work experience, a template will be provided to clarify the components of your involvement within the Summer Research time-frame.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 15
Supervisor/s:	Stacy Sims & Christopher Battershill	
Project Title:	Determining a native New Zealand species Marine Peptide (NZMP) for comparison to Whey Protein Isolate (WPI) as a stimulus for muscle protein synthesis in humans.	
Faculty:	Sport, Health & Human Performance	Field: Joint project between Marine Sciences and Health, Sport, and Human Performance

EXPECTED OUTCOMES:

1. Identification of 2-3 New Zealand Native species from which marine peptides are derived with bioactivity similar to whey protein isolate
2. Peptide identification for larger human trial
3. Data and project outcomes for external grant submission
4. Innovative, multi-disciplinary research outcomes to attract post graduate students
5. Strategic development of research teams across Marine Sciences and HSHP faculties

STUDENT TASKS:

1. The student will engage in multi-discipline literature review (aim for publication)
2. The student will be tasked for data collection- methodology for determining two or three New Zealand native marine peptide species with an amino acid-leucine composition similar to Whey Protein Isolate
3. The student will be involved in the data analysis
4. The student will be involved with the dissemination of results (peer-reviewed paper)
5. The student will be involved in research student-staff journal club (bi-weekly)/discussions
6. The student will be involved with staff from both Marine Sciences and HSHP with regards to data collection technique and analyses

REQUIRED SKILLS:

1. Scientific writing-flow, function, and endnote
2. Biochemistry-familiarity/experience with ultrafiltrate membrane systems/enzymatic digestions
3. Literature review-conceptual experience, writing experience
4. Personable
5. Ability to work independently and in a team setting
6. Ability to meet deadlines

PROJECT ABSTRACT:

In the last few years, the consumption of high bio-available protein, post-exercise, has been recommended to stimulate muscle protein synthesis in physically active individuals, mainly in individuals practicing resistance exercise (1). Whey protein isolate (WPI) (specifically due to the high leucine content) has been shown to maximize mTOR and facilitate rapid post-exercise muscle protein synthesis (MPS). WP is acid soluble and thus is digested quickly and results in a pronounced aminoacidemia. Moreover, has been reported that the intake of amino acids and peptides is beneficial. Free amino acids and peptides do not need to be digested, so rapid absorption can be expected. Attention has been focused on the effects of branched-chain amino acids (BCAAs), including valine, leucine, and isoleucine, which are known to have a relatively high content in both muscle proteins and food proteins (2). Most amino acids are metabolized in the liver, but BCAAs are metabolized in the muscles via special processes (2,3). Furthermore, BCAAs modulate muscle protein metabolism to promote the synthesis and inhibit the degradation of proteins (4-6), resulting in an anabolic effect on the muscles. Recently, many bioactive marine peptides have been proven to have high potential nutraceutical and medicinal values because of their broad spectra of bioactivities. These marine peptides were first discovered and isolated in marine species as neurotoxin (7), cardiogenic peptide (8), antiviral and antitumor peptide (9,10), and antimicrobial peptide (11). Since then, the investigations on marine bioactive peptides have continued with intent to also ascertain their applications. The question remains if marine peptides can compare or supersede the effects of whey protein as a post-exercise with regards to anti-inflammatory and anabolic properties associated with the amino acid profile of WP.

The primary objective of this summer scholar project is to identify and isolate native New Zealand species which have a similar amino acid profile of native Norwegian species which have been shown to improve cycling performance as compared to WP (12). The student will be based between Tauranga Marine Sciences and The Adams Centre for High Performance (Blake Park). Interaction with senior staff and fellow research students is expected. As the goal of this summer project is to obtain functionally active peptides, the student will learn/utilize the process of serial enzymatic digestions in a system using a multi-step recycling membrane reactor combined with ultrafiltration membrane system to separate marine-derived bioactive peptides. The outcomes of this summer scholar project will be used to direct a larger, multi-disciplinary trial that is designed to measure the response of skeletal MPS following the ingestion of the 'gold standard' high-quality whole protein (from a dietary standpoint), hydrolyzed whey protein isolate, and marine peptides at rest and after resistance exercise.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 16
Supervisor/s:	Leandro Bolzoni	
Project Title:	Understanding Si3N4-reinforced Ti nanocomposites	
Faculty:	FSEN - School of Engineering	Field: Materials Science

EXPECTED OUTCOMES:

1. The Titanium Research Group is expanding its research portfolio. The data generated through this summer scholarship will be used as starting point for the development of fit-for-purpose Ti nanocomposites and will help to strengthen an MBIE Smart Ideas proposal.
2. It is expected that the analysis of the data could be presented at a conference or published in a specialist scientific journal.

STUDENT TASKS:

1. Handling of the blended powders
2. Compaction of the powder mixtures by means of cold/warm uniaxial pressing
3. Heat treat the pressed components via sintering under vacuum or by induction
4. Study the effect of secondary processes such as hot forging or heat treatments
5. Measure physical, mechanical and microstructural properties of the nanocomposites
6. Process and evaluate the results of the various analyses to scientifically understand the behaviour of the materials developed

REQUIRED SKILLS:

1. Knowledge of materials science and engineering related topics for the formulation of novel materials with emphasis on production and characterisation of composite materials
2. Previous practical lab experience on materials
3. Background on powder metallurgy processes
4. Willing to apply the engineering knowledge acquired and learn new complementary skills to carry out applied research
5. Appropriate technical language and independent data analysis
6. Good writing skills to comment on scientific principles

PROJECT ABSTRACT:

Light metals are becoming important structural materials for the transportation industry in general and the automotive sector in particular. However, improvement of some of their specific properties (such as wear resistance) is needed and this could be achieved via adding nano-reinforcements.

The aim of this project is to address the design and characterisation of Si₃N₄-reinforced Ti nanocomposites. Specifically, Si₃N₄ nanofibers will be added to a Ti matrix with the aim of understanding the effect of the presence of the nano-reinforcement on the structural properties of the material. Ti in powder form will be mixed with the Si₃N₄ nanofibers for their processing via the conventional powder metallurgy method. Secondary thermomechanical processing might also be considered. Interaction of the Si₃N₄ nanofibers with the Ti particles is a primary concern during the development of these nanocomposites and is therefore a key aspect on which this study will focus.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 17
Supervisor/s:	Marcus Wilson	
Project Title:	Electromagnetic fields applied to the brain: Modelling mouse brains under transcranial magnetic stimulation with simNIBS	
Faculty:	FSEN - School of Engineering	Field: physics, computer science, mathematics, electronics

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. A software tool or procedure that allows the use of simNIBS to predict the electric fields induced in mouse brains under TMS2. Documentation of the tool or procedures3. If the project is successful, a journal article will be produced describing the modelling and its results

STUDENT TASKS:
<ol style="list-style-type: none">1. Collate existing MRI data on mouse brains2. Set-up the simNIBS software tool on a computer system3. Write computer code or use existing software tools to construct a finite element mesh for a mouse brain4. Measure the fields due to TMS mouse coils and describe them in terms of magnetic dipoles and enter into simNIBS5. Run the software tool simNIBS6. Document what has been done

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Software and programming skills - must familiar with using a range of scientific software tools, such as Python and Matlab2. Understanding of electromagnetism - at about 200-level - be able to describe the relationships between current, B-fields and E-fields3. Organized - the student must be able to document what they have done4. Mathematics - be able to interpret vector calculus and partial differential equations (at about 200-level)

PROJECT ABSTRACT:

Transcranial Magnetic Stimulation uses magnetic pulses to modify brain connections to treat neurological problems. Basic scientific understanding of TMS is lacking but can be improved through animal experiments. Designing TMS coils for use with mice is complicated because of their small size. We have recently made some progress with the University of Western Australia in designing coils, but lack an easy and meaningful method of assessing their performance.

The software tool SimNIBS is the gold-standard method used by TMS researchers to model the electric fields induced in a brain due to a TMS coil. It takes data from MRI images of brains and uses the finite element method to work out the electric fields that would be produced by a TMS coil. However, simNIBS makes assumptions that are valid for humans only. In this project, we aim to make simNIBS usable with mouse MRI data. This would allow rapid and meaningful assessment of mouse coil designs.

The project would largely be desk and computer-based, involving software development and documentation, and working with large data files. However, there may be some scope for making some laboratory measurements of electromagnetic fields, depending on the skills of the successful student.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 18
Supervisor/s:	Craig Cary & Charles Lee	
Project Title:	Molecular determination of seasonal dietary changes in Adelie penguins nesting at Cape Adare, Northern Victoria Land, Antarctica	
Faculty:	FSEN - School of Science	Field: Molecular ecology

EXPECTED OUTCOMES:

1. Developed method for detecting 3 primary prey items
2. Testing of the method
3. Analysis of all current guano samples in our collection
4. Analysis of samples in relation to remote sensing imagery
5. Full report on the results and a presentation to my laboratory

STUDENT TASKS:

1. Literature review
2. Review of current methods to determine diet composition from guano
3. Develop and test a method that will allow simultaneous detection of 3 primary food items
4. Extract DNA from current guano samples
5. PCR amplify diagnostic prey item gene target using the methods developed
6. DNA sequencing of PCR amplification
7. Assessment of prey items over season
8. Correlation to remote sensing images and report writing

REQUIRED SKILLS:

1. Enthusiasm!
2. Basic understanding on molecular genetic methodology
3. Experience in genetic methods preferred
4. Not turned off by penguin pool!

PROJECT ABSTRACT:

Over the last 20 years there has been an appreciable change in many Adelle penguin colonies in the Antarctic Peninsula. In some places the colony inhabitants have been completely replaced with species more common to the more northern sub-Antarctic islands. These changes have been attributed to a regional warming climate that has dramatically changed the extent and longevity of seasonal sea ice that is essential for fuelling the local food supply. Breeding success much depends on availability (how far they have to travel) and quality (type of food item) of food. Sea ice extent determines both how far they need to travel to feed and what food is available to them.

This study will examine seasonal guano samples collected from the largest Adelle penguin colony in Antarctica, located in Northern Victoria Land at Cape Adare. The recipient will develop and use new genetic techniques to identify and possibly quantitate the prey item selection of the penguins from the guano samples. These data will be correlated to daily satellite photographs to provide an analysis of the extent of the sea ice in relation to prey items being caught. The student will become versed in penguin ecology, new molecular tools to assess diet and the use of remote sensing capabilities.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 19
Supervisor/s:	Kevin Collier & Gary Rushworth	
Project Title:	The influence of aquatic vegetation upon macroinvertebrate communities	
Faculty:	FSEN - School of Science	Field: Freshwater Ecology

EXPECTED OUTCOMES:

1. Method development for accessing the impact of invasive weeds
2. Key ecological data at important sites
3. Enhanced stakeholder relationships
4. Report and recommendations for future investigation

STUDENT TASKS:

1. Design a short field survey to sample invertebrates associated with aquatic macrophytes
2. Collect ecological samples
3. Identify aquatic macroinvertebrates and within macrophytes
4. Compile data, conduct data analysis and write brief report

REQUIRED SKILLS:

1. Prefer training in and/or experience working as an ecologist/biologist
2. Statistical methods and data analysis
3. Taxonomic/microscope/analytical skills
4. Experience working in/near water or outdoors in general
5. Driver's licence
6. Ability to work in a team environment
7. Sound writing skills

PROJECT ABSTRACT:

This project will help Hawke's Bay Regional Council improve its rivers and lakes by providing important information on what drives water quality and biodiversity in shallow rural lakes. This project will steer future research/investigations, and management plans.

Exotic invasive aquatic macrophytes are a major problem throughout New Zealand. They dominate many of Hawke's Bay's river and lake ecosystems. This has consequences for flood defense, and is a major threat to biodiversity and Māori values. Removing or 'cutting' macrophytes is time consuming and expensive, and needs to be maintained over many months (sometime indefinitely). Where macrophyte removal is successful there can be severe ecological consequences (e.g. blue-green algal blooms).

While exotic macrophytes are generally considered to be undesirable, they have the potential to be beneficial under certain circumstances. For example, they bind together soft sediment, and provide food and refuge for macroinvertebrates and fish.

The aim of this project is to understand how different types of submerged macrophytes modify their environment. Macroinvertebrates are vital links between plants, and vertebrate consumers (e.g. fish and birds). They also make important contributions to biodiversity. By describing the key traits within macroinvertebrate communities, it is possible to gain insights into key ecological processes. For example, some invertebrates influence water clarity, and nutrient cycling by filter feeding. Consequently, they provide an insight into ecosystem function and health.

Macroinvertebrates are relatively easy to sample and identify. After a brief period of training in sampling and identification techniques, you will design a method for the characterisation of different types of macrophyte by using macroinvertebrate communities. You will select your own sample sites within a shallow lake (e.g. Lake Hatuma).

Data analysis will highlight differences and similarities between macroinvertebrate communities for a range of different macrophyte habitats. This will include measures of diversity, and trait-based information (e.g. feeding guilds, and vulnerability to fish predation).

The study will be based at Hawkes Bay Regional Council in Napier, and a report is expected at the end of the project. The report will include recommendations for the management of macrophytes within important ecosystems.

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ACADEMIC PROJECT SUBMISSION DETAILS:

PROJECT #: 20

Supervisor/s:	Fiona Petchey & Dale Fletcher	
Project Title:	Can we date that? Development of a Near Infra-Red screening tool for bone	
Faculty:	FSEN - School of Science	Field: Radiocarbon, Archaeology, Computing, Chemistry, Earth Sciences

EXPECTED OUTCOMES:

1. Development of a commercially viable bone pre-screening tool for bone preservation assessment
2. Paper in a peer-reviewed radiocarbon journal

STUDENT TASKS:

1. Sort and scan bones held in the Radiocarbon laboratory storage facility
2. Become familiar with NIR instrument and theory
3. Upload information for predictive modelling
4. FTIR analysis of bones
5. Write up and analysis of results
6. As part of this work the student is expected to become familiar with the processes undertaken during radiocarbon dating. The student will therefore assist with all aspects of the daily activities of the radiocarbon lab. Training will be given as required.

REQUIRED SKILLS:

1. Care and attention to detail
2. Good writing skills
3. An interest in either archaeology, chemistry, earth sciences or computing
4. Basic laboratory skills
5. Ability to work regular hours

PROJECT ABSTRACT:

Bone is a critical material for archaeological research with a wide range of analyses being undertaken, including radiocarbon dating, DNA and stable isotope analysis for dietary research. Prior to undertaking these analyses, the protein portion (collagen) of the bone is isolated, and a range of quality assurance tests undertaken to ensure the collagen is sufficiently well-preserved and free from potential contaminants. Unfortunately, the degree of collagen preservation varies depending on the burial conditions, local environment and age of the sample. Consequently, the analysis of bone is a complex, time-consuming process.

PROJECT ABSTRACT:

Moreover, a high percentage of samples are rejected as unsuitable for analysis, but only after the sample has been damaged or modified during the screening process.

This project aims to develop a method based on Near Infrared (NIR) imaging to rapidly and non-destructively evaluate the relative preservation of collagen and presence of exogenous contamination in bones sent for analysis to the Waikato Radiocarbon Dating Laboratory. The Faculty of Computing and Mathematical Sciences has two near infrared spectrometers available. One is a high-quality, field-portable instrument with a wide spectral range, the other an inexpensive consumer grade spectrometer with a narrow spectral range. The project will consist of two phases:

Firstly, a selection of bone samples with a range of known collagen preservation states will be scanned on both instruments. Predictive models for both instruments using state-of-the-art machine learning methods will be developed with the assistance of the Applied Machine Learning Group. Secondly, an independent set of bone samples will be scanned on both instruments, and the modeled results compared against ground truth. These results will be evaluated to determine the viability of each spectrometer to be used as an inexpensive, rapid, non-destructive screening test for collagen concentration with both laboratory and field applications.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 21
Supervisor/s:	Conrad Pilditch & Dr Anna Madarasz-Smith (Hawke's Bay Regional Council)	
Project Title:	Mapping biogenic habitats in estuaries	
Faculty:	FSEN - School of Science	Field: Marine Ecology

EXPECTED OUTCOMES:

1. Biogenic habitat maps of the Ahuriri and Waitangi Estuaries
2. Development of a robust and repeatable methodology for measuring habitat change
3. An understanding of the relationship between different biogenic habitats and sediment composition

STUDENT TASKS:

1. Develop monitoring protocol and survey design
2. Collect field data
3. Create digital maps of estuarine habitats
4. Develop correlations between species and sediment composition
5. Generate a report describing methods and habitat classifications

REQUIRED SKILLS:

1. Marine ecology student
2. Geographical Information Systems
3. Experience of field work
4. Experience of working alone

PROJECT ABSTRACT:

As the interface between land and sea, estuarine habitats are distinctive and dynamic environments. Estuarine flora and fauna must contend with harsh conditions including prolonged periods of emersion and immersion, and changes in salinity, temperature and oxygen availability. Despite these challenges, estuaries remain one of the most productive ecosystems on the planet, providing key ecological services that help to sustain environmental quality and integrity.

Despite long-term monitoring programmes aimed at assessing overall estuary state and health, the composition of estuaries in terms of habitat, and habitat/species interactions is an area that is less well understood.

Biogenic habitats in particular, are a crucial element of estuarine function. For example fisheries production is reliant on estuaries to provide spawning habitat and structural refugia for juvenile fish species and avifauna (e.g. Godwits) may utilise estuary resources as part of trans-equatorial migratory routes.

PROJECT ABSTRACT:

This project aims to delineate key biogenic habitats within the Waitangi and Ahuriri Estuaries which are located near Napier. Key biogenic habitats in these estuaries may include shellfish beds, areas of macroalgae, seagrass beds, bryozoan mounds and colony forming invasive species. The student will use field-sampling techniques to establish the extent and density of these habitats which will then be digitised into a map using ESRI ArcGIS. Field sampling will also include collecting substrate samples for grain size analysis in order to draw correlations between substrate and habitat type.

Please note, the student will need to be based in Napier. Office space will be provided by Hawke's Bay Regional Council.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 22
Supervisor/s:	Rebecca Gladstone-Gallagher & Conrad Pilditch	
Project Title:	Impacts of estuary eutrophication on soft-sediment ecosystem function	
Faculty:	FSEN - School of Science	Field: Marine Ecology & Biological Oceanography

EXPECTED OUTCOMES:

1. The project will result in the collection of data that will lead to at least two publications in internationally peer-reviewed journals
2. This project will most importantly provide an amazing opportunity for a young and emerging researcher to experience and take the first step to a career in marine science

STUDENT TASKS:

1. Help to organise field campaigns, including the testing of equipment and instruments in preparation for field deployments
2. Assist with field experiments and sampling. This will involve the setup of nutrient addition experiments, deployment of fluorescent sediment tracers, as well as subsequent sampling of sediments and fauna
3. Assist with laboratory analysis of sediment and fauna samples, and undertake flow tank measurements of sediment stability
4. Data entry and potential photo image analysis of fluorescent sediment tracers

REQUIRED SKILLS:

1. Technical skills and background are not important, as full training will be provided
2. Must be highly motivated and hard working
3. Must enjoy fieldwork and working as part of a team
4. Should have a strong interest in marine ecology/conservation
5. Pay attention to detail and have an ability to work to a high standard
6. Be competent using Microsoft Excel and Word
7. A full drivers licence would be useful but not essential

PROJECT ABSTRACT:

Estuaries offer many important ecosystem services that benefit society (e.g. they supply the primary production that supports coastal fisheries), but they are also often heavily impacted by human activities. The intensification of agriculture/horticulture, forestry, and urban development in coastal catchments increases the delivery of terrestrial sediments, nutrients, and pollutants into the estuarine benthic environment.

These stressors negatively affect many of the sediment-dwelling organisms that carry out the ecosystem functions that underpin valuable ecosystem services. One important process in estuaries is the mixing of sediment particles by the resident fauna (i.e. worms, crabs, and shellfish). These fauna are the 'earthworms' of the marine environment, and their physical burrowing and movements mix and irrigate the sediments, in a process known as 'bioturbation'. This interaction between the fauna and their physical environment, modifies the biological, chemical and physical properties of the sediments, regulating many important ecosystem functions, such as nutrient cycling, primary production, organic matter degradation, and the ability of the sediments to resist erosion.

As part of ongoing research in our group, we will be undertaking field experiments to explore how eutrophication of estuaries may modify ecosystem function, and in particular how elevated nutrients alter the bioturbation potential of the sediment-dwelling fauna. The study will involve the addition of nutrients to sediment at several sites, after which we will monitor the effects of enrichment on bioturbation. The experiment will have two parts: 1) we will use fluorescent sediment tracers and photography methods to measure the mixing of particles; and 2) we will use laboratory flow tanks to measure how changes in sediment particle reworking by the benthic fauna influences sediment stability. The overall aim of the research is to better our understanding of the effects of eutrophication on our coastal ecosystems.

We are looking for a highly motivated student to join our research group for the summer. Your job will be to assist with the field and laboratory work associated with the enrichment experiment. However, there will also be opportunities to be involved with other current and exciting projects in our group that are exploring ecosystem services and tipping points in estuaries. These additional projects are in collaboration with scientists from the Universities of Waikato, Auckland, Otago, Canterbury, as well as NIWA and the Cawthron Institute. This scholarship offers an exciting opportunity to interact with an internationally recognised and a world-leading group of scientists to produce research that will ultimately inform better management of our coastal ecosystems.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 23
Supervisor/s:	Mike Clearwater & Toni Cornes	
Project Title:	Flowering phenology and nectar production of Manuka	
Faculty:	FSEN - School of Science	Field: Ecology and Biodiversity

EXPECTED OUTCOMES:

1. A dataset describing natural variation in manuka flowering time, flowering intensity and nectar production with altitude and soil type

By participating in this project, you will get to experience an example of applied research in context. You will also be equipped with skills essential for qualitative researchers to help you pursue an independent postgraduate level research project. Additionally you will gain a better understanding of adult L/N learners and tutors, adult L/N learning and teaching and wellbeing frameworks. Ideally, this will establish a research area of interest for you that is appealing, contemporary and of wide public interest. Your contributions as a Summer Research scholar in this project will be acknowledged in the authorship of related publications.

STUDENT TASKS:

1. Field data collection, tagging and monitoring flowering plants
2. Nectar sample collection and analysis
3. Data entry, image and data analysis

REQUIRED SKILLS:

1. Ability and availability to work at remote Central North Island field locations essential, including multi-day field trips
2. Basic knowledge of field ecology and plant biology
3. Careful record keeping and sample collection and handling
4. Effective team work in the field
5. Driver's license preferred

PROJECT ABSTRACT:

NZ manuka honey production has expanded rapidly in recent years to become a major export industry, but is still unable to meet international demand. The majority of honey is collected from sites with wild manuka plants that are highly variable in their flowering behaviour, resulting in variation in honey yield and quality that limits further growth of the industry.

The goal of this research is to gather data on the timing and intensity of flowering within populations of wild Manuka plants growing along a natural altitudinal gradient, and with variation in soil fertility. Individual plants will be tagged, photographed and their flowering behaviour recorded. Nectar samples will be taken and analysed for their composition. Plant nutrient status and other environmental variables will also be recorded.

This research forms part of a larger government funded collaboration between the University of Waikato, Crown Research Institutes and several iwi groups with the ultimate goal of improving the production and value of NZ native honeys.

The Summer Scholar's role will be to act as a field assistant to graduate students and staff working within the program, and to run their own experiments examining the effect of time of day and environmental conditions on nectar flow in manuka. The scholar will also contribute to sample and data analysis in the laboratory.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 24
Supervisor/s:	Carolyn King & Clare Browne	
Project Title:	Learned foraging in sparrows	
Faculty:	FSEN - School of Science	Field: Animal behaviour

EXPECTED OUTCOMES:

1. A systematic description of a novel learned foraging behaviour in this abundant commensal species
2. Good experience for the student in the techniques of animal observation

STUDENT TASKS:

1. Observe the behaviour of live sparrows
2. Understand the procedures for observation of live animals in the wild
3. Prepare data sheets and keep careful records; undertake appropriate analyses; write up the results as a report

REQUIRED SKILLS:

1. Monumental patience and excellent observation skills
2. Good communication skills (cafe owners and the general public will ask a lot of questions)
3. Ability to keep systematic records

PROJECT ABSTRACT:

House sparrows living near pavement cafes have sometimes been observed to steal sugar straws from table-top storage containers, and peck them open to access the sugar crystals. This project aims to ask some simple questions about this behaviour.

1. How many of a sample of widely spaced Hamilton cafes have sparrows that can do this?
2. Is the behaviour confined to any obvious social category (males vs females, dominant vs submissive, adults vs juveniles)?
3. Do sparrows prefer the large brown crystals of raw sugar, or can they also take the finer crystals of white sugar?
4. Do parents teach their chicks to do this?

The project will require a very patient student to learn the techniques of live observation, take detailed notes and interpret them. It will also require co-operation from cafe owners.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 25
Supervisor/s:	Clare Browne	
Project Title:	Examining the behavioural and welfare impacts of vertical space enrichment in pet rabbits.	
Faculty:	FSEN - School of Science	Field: Animal behaviour.

EXPECTED OUTCOMES:

1. The student will gain an understanding of the processes involved in applied animal behaviour and welfare research.
2. They will also gain experience collecting and analysing animal behaviour data.
3. The information gained from this project may be informative for rabbit owners, and relevant companion animal welfare organisations and agencies.
4. Depending on the data collected, there may be the opportunity for a peer reviewed paper to be written.

STUDENT TASKS:

1. Collecting information on rabbit housing dimensions.
2. Observing and recording animal behaviour (remotely, via video).
3. Analysing video recorded behaviour data.
4. Writing a report.

REQUIRED SKILLS:

1. Skills in careful observing and recording of animal behaviour (experience is preferred, but this can be taught).
2. Good communication skills for interacting with rabbit owners.
3. Drivers licence and the ability to travel to rabbits.
4. Experience with rabbits is an advantage, but not necessary.

PROJECT ABSTRACT:

Rabbits are an increasingly popular companion animal in New Zealand, with an estimated 100,000+ being kept as pets (NZCAC, 2016). The welfare status of this pet is relatively poorly studied as compared to other species (e.g., dogs, cats). Research from comparable countries (e.g., the UK) has found that pet rabbits are often kept in sub-optimal welfare conditions (Rooney et al., 2014).

PROJECT ABSTRACT:

Rabbits are commonly housed in spatially restricted environments, such as hutches; and international studies have shown that pet rabbits are frequently kept in hutches of dimensions smaller than what is legally required for laboratory and farm rabbits (Dixon et al., 2010; Rooney et al., 2014). In New Zealand there has been very little, if any, research into the behaviour and welfare of these companion animals.

Additional housing space has been examined in terms of environmental enrichment and welfare, and more space is generally considered to allow rabbits to express a larger repertoire of normal behaviours (Dixon et al., 2010). Many rabbit hutches are single-storied, although rabbits will use vertical space when it is provided. There is some data on rabbits' use of vertical spaces such as platforms, although outcomes are often measured in terms of production rabbits' performance (e.g., Hansen & Berthelsen, 2000; Miko et al., 2014). It would be interesting to assess if low-cost additions to pet rabbits' hutches might impact these animals' behaviour and welfare.

The aim of this project is to assess the spatial restrictions of companion rabbits in New Zealand, and to examine how the provision of additional vertical space affects their behaviour. It will involve collecting information on rabbits' housing dimensions, as well as video recording pet rabbits before and after vertical space is added to their existing hutches. Time budgets of the rabbits will be constructed, and the location preferences of the animals will be examined. This goal of this project is to identify if low-cost vertical space enrichment has a measurable effect on pet rabbits' welfare.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 26
Supervisor/s:	Michael Clearwater	
Project Title:	Flowering and pollination in <i>Dactylanthus taylorii</i> on Mount Pirongia	
Faculty:	FSEN - School of Science	Field: Biology/Terrestrial Ecology

EXPECTED OUTCOMES:

1. The student will learn about the reproduction biology, pollination and ecology of *Dactylanthus taylorii* (especially interactions between *Dactylanthus* and its pollinators and predators) as well as how to carry out data collection in the field.
2. The project report will contribute towards a greater understanding of flowering and pollination of *Dactylanthus taylorii* on Mount Pirongia.
3. This will help inform conservation techniques used by the Pirongia Restoration Society and the Department of Conservation.

STUDENT TASKS:

1. Field data collection including observation of site characteristics (e.g. host tree species), flowering times, pollinators and seed dispersers
2. Bat monitoring
3. Field data entry
4. Photography

REQUIRED SKILLS:

1. A good level of fitness, the ability to read maps, use a compass and handheld GPS is essential.
2. Some knowledge and understanding of *Dactylanthus taylorii* would be useful, as would identification of native plants within the study area
3. Ability with photographic equipment desired

PROJECT ABSTRACT:

The fully parasitic flowering plant *Dactylanthus taylorii* is a threatened species endemic to New Zealand. It is found on a fairly wide range of host species typically in succession forest but its range is now restricted to a few locations. On Pirongia, which is a site of national importance for *Dactylanthus* it is found only at sites near the summit. The natural pollinator is the short-tailed bat which is not known to exist on Pirongia.

PROJECT ABSTRACT:

Dactylanthus is known to produce significant quantities of nectar during its flowering and is thought to have been an important eco-system driver when it was more widespread. Collection in previous times of the wood-rose (the distortion caused to the host root by Dactylanthus as it grows) along with damage from browsing from possum and other pests has contributed to its decline. Hand-pollination is known to achieve seed set where natural pollination does not occur and Dactylanthus seed has been successfully sown in Pureora and at other sites.

Plants on Pirongia are caged to protect them from damage. Accessibility and restricted resource have meant that monitoring of these plants has been limited. Volunteers from Pirongia Restoration Society have monitored flowering over the last two summers and carried out some hand pollination. Seed-set this year has been successful and not always where pollination has been by hand.

Flowering has only been observed over short windows of time (one to two days) in January but evidence from recent observations of seed set indicates that the flowering period may last for some weeks.

Through observation of plants over several weeks during January and early February this project will enable a better understanding of the flowering period of the Dactylanthus populations on Pirongia. Use of bat monitors will determine whether short-tailed bats are in fact not present as is thought to be the case. Use of appropriate photographic techniques will enable an understanding of what is enabling pollination to occur naturally where seed-set is known to have been achieved without human intervention.

This project will contribute to our understanding of the biology and autecology of Dactylanthus taylorii and fits within the research objectives of the Department of Conservation's national Dactylanthus recovery plan (12.3.3) particularly in respect of recruitment and pollination (see Action 1.1).

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 27
Supervisor/s:	Kevin Collier	
Project Title:	An integrated survey approach for collection of aquatic habitat and species information within the Upper Waikato River catchment	
Faculty:	FSEN - School of Science	Field: Freshwater ecology

EXPECTED OUTCOMES:

1. Synthesis of science and matauranga approaches to mahinga kai species sampling and habitat assessment for selected Waikato streams in the NTNW rohe
2. Practical methodology for comprehensive assessment of wadeable streams is developed for the Upper Waikato area that incorporates local iwi aspirations for restoration of mahinga kai species
3. Report summarising Outcomes 1 and 2

STUDENT TASKS:

1. Collation of existing sampling protocols and methods for habitat assessment and mahinga kai species sampling in wadeable streams (including matauranga Maori assessments)
2. Review of habitat preferences of key mahinga kai species (kakahī, koura and tuna)
3. Review protocols, methods and application to habitat preferences of mahinga kai species
4. Selection and amalgamation of variables into methods for iwi field testing
5. Producing a report on the information review and results of methodology trials, and recommending options for various method implementation to meet iwi objectives

REQUIRED SKILLS:

1. Experience working in regional council and iwi environments with appropriate iwi contacts
2. In-depth knowledge of stream sampling/assessment methods and matauranga frameworks
3. Field survey and data collection skills
4. Willingness to take responsibility and work independently
5. Methodical and structured approach to conducting research
6. Excellent report writing skills

PROJECT ABSTRACT:

The MBIE programme Ngaa Tohu o te Taiao: Sustaining and Enhancing Mahinga Kai aims to develop complementary methods involving science and matauranga Maori to inform management of freshwater environments and food sources traditionally used by tangata whenua. Various methods and protocols exist for undertaking comprehensive freshwater surveys in wadeable streams. These include both western science and matauranga Maori assessments. Each method and protocol has been developed to provide information to achieve data to inform a particular purpose. Each of these methods has advantages and there are synergies between many.

This project seeks to develop an overarching methodology that will assist in providing the following for a range of selected sites in the Upper Waikato River (which may be applicable elsewhere):

- informs current state and species composition of survey sites
- provides information to identify rehabilitation or restoration needs
- aligns with and considers data collected by other agencies, and frameworks incorporating traditional knowledge
- is feasible and repeatable for use in field assessments
- seeks to provide a matauranga Maori perspective and input into evaluation.

The project will involve reviewing existing sampling and assessment methods for freshwater biota and instream/riparian habitat, testing the applicability of these approaches in a matauranga framework, and developing an approach that can be used to meet iwi monitoring objectives. The work will be based in Rotorua and will involve working closely with Ngati Tahu Ngati Whaoa Runanga Trust (NTNW).

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 28
Supervisor/s:	Kevin Collier & Sue Clearwater	
Project Title:	Fish fauna associated with freshwater mussels in Waikato Streams	
Faculty:	FSEN - School of Science	Field: Freshwater Ecology

EXPECTED OUTCOMES:

1. Identification of study sites with both low and high densities of diverse native fish fauna for ongoing research
2. Development of survey skills and familiarity with Waikato streams
3. Elucidation of relationships between mussel population densities and densities of fish fauna that can serve as larval hosts
4. Development of a method to rapidly and non-lethally evaluate the parasitic mussel larvae infestation rate of freshwater fish in the field
5. Preliminary examination of relationships between fish fauna composition (diversity) and mussel population densities
6. A report summarising the results of the above

STUDENT TASKS:

1. Site selection for surveys based on the Waikato Regional Council freshwater mussel database
2. Development of a survey schedule and survey methods specific to this project and electric-fishing surveys of selected sites
3. Development of methods for evaluating parasitic mussel larvae infestation rates of native fish
4. Data processing, analysis and write-up

REQUIRED SKILLS:

1. Freshwater fish species identification with a focus on native species
2. Experience in freshwater fish and freshwater mussel surveys
3. Fish fauna data collection, management and analysis skills
4. Excellent communication skills and ability to work in a team in challenging field conditions
5. Excellent report-writing skills

PROJECT ABSTRACT:

The MBIE-funded programme Cultural Keystone Species: Co-management and Restoration of our Freshwater Taonga Species aims to co-develop research methods, tools and products with whanau, hapū, and iwi that inform new and innovative management approaches for the protection, restoration and economic development of Cultural Keystone Species (CKS). Freshwater mussels (kākahi/kāeo) are one of these CKS and we aim to address information gaps about the factors that may be causing their decline in Waikato streams - with the long-term goal of developing restoration techniques in collaboration with local iwi.

The scholarship project is to undertake surveys to characterise the fish fauna associated with different densities of freshwater mussel populations in selected Waikato streams. Tasks will include assisting with site selection and electric-fishing surveys, fish identification and enumeration, data-recording, analysis and write-up. Methods must also be developed to evaluate the parasitic freshwater mussel larval infestation rate of native fish. Project may include assisting with field surveys of the less common freshwater mussel *Echyridella aucklandica*.

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ACADEMIC PROJECT SUBMISSION DETAILS:

PROJECT #: 29

Supervisor/s:	Megan Grainger	
Project Title:	Categorisation and Discrimination of Automotive Glass by LIBS for Forensic Purposes	
Faculty:	FSEN - School of Science	Field: Chemistry

EXPECTED OUTCOMES:

7. Comparison of data from LIBS and LA-ICP-MS to discriminate glass
8. Categorisation of glass samples into country of origin
9. Spatial elemental analysis of a windscreen

STUDENT TASKS:

5. Undertake a background literature search for a method
6. Analyse glass samples for elemental composition using Laser Induced Breakdown Spectroscopy (LIBS)
7. Use statistical software (E.g. weka) to group samples by country of origin
8. Compare the dataset with a data previously collected by LA-ICP-MS on this set of samples.
9. Summarise the findings in a convenient form (e.g. excel spreadsheet)
10. Write a report on the ability of LIBS to categorise and discriminate glass samples

REQUIRED SKILLS:

6. Careful and have attention to detail
7. Confident to use instrumentation
8. Skilled at using Excel
9. Confident to work with large sets of data
10. Able to follow instructions
11. Prepared to undertake repetitive tasks
12. Ability and eagerness to learn new skills
13. Good writing skills

PROJECT ABSTRACT:

Glass is one of the most common types of trace evidence left at crime scenes. It is easily transferred from the source of the glass to the offender or to the crime scene. Therefore glass can be a useful piece of trace evidence to link a person to a crime scene.

Originally glass was analysed by refractive index (RI), but with more controlled manufacturing processes most glass cannot be distinguishable from many other glass fragments.

A fingerprint of minor and trace elements in glass can be used as a more powerful discrimination tool, due to the number of variables. Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) has been used to distinguish glass samples; however, this is a costly technique and often cannot be used during a forensic investigation due to the lack of funding for the case.

Laser Induced Breakdown Spectroscopy (LIBS) is a cheaper technique that can also measure elemental composition. It has recently been used for analysis of glass. This project will look at the ability of LIBS to obtain data from small fragments of automotive glass. The data will be statistically analysed to both categorise and discriminate the samples. Categorisation of the glass will include grouping samples into glass type (automotive float glass, bottles etc as well as country of origin).

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 43
Supervisor/s:	Moritz Lehmann & Uyen Nguyen	
Project Title:	Water quality from space: How good is remote sensing data?	
Faculty:	FSEN - School of Science	Field: Aquatic Science

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. A new and unique data set of New Zealand lake water quality2. A poster to be presented at the student conference

STUDENT TASKS:
<ol style="list-style-type: none">1. Survey existing ground observations of lake water quality2. Liaise with regional councils to obtain their lake water quality data3. Organise and process the ground observations4. Regress remote sensing data against ground observations

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Experience with numerical data2. Experience with geographical information systems (e.g., ArcGIS)3. Experience with computer programming using scripting languages (e.g., Matlab, Python, R)4. Good communication skills and willingness to call people

PROJECT ABSTRACT:
<p>Satellite remote sensing provides a huge opportunity to determine water quality of all 3820 New Zealand lakes. However, ground observations are needed to check the quality of the satellite estimates of water quality.</p> <p>This project is aimed at comparing a vast data set of remotely sensed water quality against as many ground observations as possible. The data sets compiled during this study are of global significance due to the large number and diversity of lakes in New Zealand.</p>

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 30
Supervisor/s:	Bruce Clarkson	
Project Title:	Pollination biology in a submontane forest ecosystem	
Faculty:	ERI (Environmental Research Institute)	Field: Biology

EXPECTED OUTCOMES:
1. The student will learn key techniques in pollination biology research and contribute data toward a Biological Heritage National Science Challenge project.

STUDENT TASKS:
1. Field data collection
2. Field data entry

REQUIRED SKILLS:
1. Ability to work in the field essential
2. Some plant identification skills preferred
3. Some knowledge of insect identification would be beneficial

PROJECT ABSTRACT:
<p>Honey bee hives first arrived in Hokianga from England in 1839. What started out as a backyard hobby has, in recent years, transformed into New Zealand's booming apiculture industry. Since the early nineties the number of beehives registered in New Zealand has nearly doubled. In the last year alone, the numbers of hives in New Zealand has increased by 100,000. With this increase in hive numbers, the demand for access to conservation lands has increased. This trend necessitates an increase in understanding of the role and impact of honey bees in native ecosystems.</p> <p>Interactions between honey bees and native flora and fauna have been described for ecosystems in other parts of the world, but few studies have been done in New Zealand. Both positive and negative effects of introduced honey bees in native ecosystems have been identified. Introduced fauna, in some cases, provide supplementary pollination for plant species whose natural pollinators are extinct or in decline. On the other hand, potential negative impacts include: competition with native fauna for pollen, nectar, and nesting hollows; inferior pollination of native plants; increased hybridisation; physical damage of plants; and exacerbation of exotic weed problems. Few of these interactions are supported with experimental data, particularly in New Zealand.</p>

PROJECT ABSTRACT:

This project will use pollination biology techniques to collect data that will contribute to an increased understanding of the role and impact of honey bees in the submontane forest of the Kaimai-Mamaku Range. These techniques include video surveillance of flower-visitor interactions, collection and identification of flower-visiting insects, single-visit flower-visitor analysis, and experimental pollination treatments on native trees. In addition, collection of nectar and pollen, vegetation plots, and measurement of the extent of flowering events will be used to understand the floral landscape, giving a context for the flower-visitor interactions that will be observed.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 31
Supervisor/s:	Uyen Nguyen	
Project Title:	Remote sensing of New Zealand lakes	
Faculty:	ERI (Environmental Research Institute)	Field: Freshwater ecosystem

EXPECTED OUTCOMES:

1. Collection of hyperspectral data from field work
2. Using hyperspectral data to validate remote sensing data for the purpose of long-term lake monitoring at multiple scales
3. Characterize seasonal variability of CDOM, Chl and TSS from remote sensing and hyperspectral dataset

STUDENT TASKS:

1. Planning and conducting field sampling
2. Analyzing water samples
3. Data analysis
4. Extracting field data from Hyperspectral instrument
5. Satellite data processing

REQUIRED SKILLS:

1. field sampling
2. ArcGIS
3. Statistical analysis (R, Matlab, Python)
4. lab techniques

PROJECT ABSTRACT:

New Zealand lakes are an important resource for national economy and tourism in the country. These lake characteristics have a wide range of states and mixing regimes because of different levels of nutrient and enriched geomorphic inputs. However, availability data of many lakes are still limited to retrieving historical and continuous lake information to better understand lake characteristics and water quality at regional and national scale, particularly in distance or remote areas that may not have any ground-based monitoring program.

The project focuses on applying methods to monitoring water quality properties of lakes using remote sensing and developing specific algorithms for the retrieval of water quality parameters (CDOM, Chla, TSS) processing along with field data collection from the in-situ and hyperspectral measurement.

PROJECT ABSTRACT:

We are looking for an adventurous and keen summer student who participate in all facets of the project, focusing on conducting field sampling, water quality analyses, and lab data analysis. Background and experience in the fields of limnology, environmental chemistry, freshwater ecology are important qualifications for this position.

We are also looking for a summer student to work on geospatial and statistical analysis with a background of understanding freshwater ecology, GIS, landscape ecology and/or GIS-remote sensing and computer science.

This research is part of the MBIE project. We are able to support as co-fund for one summer student. And another position has to apply for the full summer scholarship program.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 32
Supervisor/s:	Linda Smith	
Project Title:	Case Studies in Indigenous State relations	
Faculty:	FMIS	Field: Māori and Indigenous Studies

EXPECTED OUTCOMES:

1. Four Case Study Portfolios that include a solid range of resources.
2. Strong introductions to each case study
3. Four Reference lists

STUDENT TASKS:

1. Discuss and agree upon the four cases
2. draw up a timeline to ensure each case study can be completed in time
3. with each case study set up an on line file and filing system
4. search on line for material that lays out the case, including videos, academic articles, links,
5. Write an overview of the Case, identify the key actors, identify the strategies and outcomes for each case.
6. ensure a reference list is established for each case study
7. Review and Discuss each case study with the supervisor
8. Write a two page brief review of the process

REQUIRED SKILLS:

1. Good on-line search skills
2. Independence and persistence
3. Good library skills
4. Ability to summarise

PROJECT ABSTRACT:

The project will develop four case studies that highlight the complex ways in which indigenous nations/iwi and the state/Crown/Governments negotiate, contest, resist or respond to issues. One recent example of a case study would be the protest taken by the Standing Rock Sioux over the North Dakota pipeline, another would be climate change policies, water rights, offshore drilling, state care and protection of children, imprisonment etc.

PROJECT ABSTRACT:

The Four Case Studies will depend on the student's discipline background and will be negotiated by the supervisor and student. The student will then carry out desktop research that identifies and lays out the 'case', draws out the arguments and perspectives of different actors, and then examines the strategies used for engagement, dis-engagement, compromise, direct action, litigation, peacemaking, policy development or other actions.

The project will produce 4 on-line portfolios of resources, links, PDF documents with an introduction by the student.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 33
Supervisor/s:	Alice Te Punga Somerville	
Project Title:	Pacific Waikato	
Faculty:	FMIS	Field: Pacific Studies/ Indigenous Studies

EXPECTED OUTCOMES:

1. Comprehensive annotated bibliography related to the topic
2. Report on statistics and other relevant contextual information related to the topic

STUDENT TASKS:

1. Produce an annotated bibliography about Pacific presence in the Waikato.
2. Undertake database searches to identify research and publications on the topic.
3. Conduct primary research at archives (eg Waikato Uni and Waikato Museum) as well as through newspaper and audio visual collections about the topic.
4. Read and take notes on all sources identified.
5. Collate statistical information about Pacific people in the region.

REQUIRED SKILLS:

1. Basic research skills: database searches, identification of relevant keywords, sourcing of materials listed.
2. Critical reading skills and an ability to trace key themes and terms across a range of documents.
3. Some background into Pacific history/ cultural context would be ideal.
4. Ability to work in a range of spaces: libraries, archives, museum.
5. Clear writing skills.
6. An interest in discussing matters related to the topic with research supervisor.

PROJECT ABSTRACT:

What do we know about the presence and perspectives of Pacific people in the Waikato region? This research project will identify research and writing about the history and contemporary experiences of Pacific people in the Waikato.

There are longstanding and deep Pacific connections to the Waikato in specific sites (Tokoroa, Hamilton), through specific industries (forestry, education etc) and from a range of communities from across the Pacific region. Although the primary area of interest is in Pacific people living in the area, there are other less tangible Pacific-Waikato connections such as that traced by Katerina Teaiwa in her work on the mining of phosphate from Banaba for use in fertilisers spread across Waikato farms.

PROJECT ABSTRACT:

The research will consider a wide range of ways that Pacific people in the Waikato have connected with each other as well as with the region, including through organisations such as churches, educational institutions and cultural festivals.

The central focus of the project will be on developing an annotated bibliography that traces the wide range of ways that Pacific presence in the Waikato has been documented, recorded and celebrated. This will require the researcher to undertake extensive database searches and some archival work, to read and take notes on findings, and to produce a system of recording keywords and bibliographic information for the purpose of making the bibliography searchable.

Although much of the project will focus on published scholarship and research, it will also include working with newspapers and audio visual collections as well as archives at key regional cultural sites such as the Waikato Museum. In addition, the researcher will collate statistical information about the diversity and scope of Pacific people living the region over time, and information about past and contemporary Pacific students at the University of Waikato.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 34
Supervisor/s:	Haki Tuaupiki	
Project Title:	Te Mātauranga Whakatere Waka	
Faculty:	FMIS	Field: Te reo Māori

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. Ko noho tēnei rangahau hei whāriki mō tētehi pukapuka Mātauranga Whakatere Waka e whakaarotia nei kia puta i a au ā te wā2. Ka tīmataria te waihanganga mai o tētehi pepa whakaako, taumata tuatahi ki roto i Te Whare Wānanga nei3. Mā tēnei rangahau ka puare he huarahi hei tautoko i ētehi taura ki te whakatutuki i ā rātou tohu paerua, tohu kairangi rānei

STUDENT TASKS:
<ol style="list-style-type: none">1. Ka kohikohia ngā kupu mō ngā wāhanga katoa o te waka, ngā tohutohu whakahaere i te waka, tae atu ki ētehi pitopito kōrero mō ngā momo rākau e tika ana hei hanga i te waka.2. He whakaemiemi i ngā kupu me ngā tohutohu katoa mā ngā whetū, te rā, te marama, ngā huarere, ngā hau, ngā kapua, ngā manu me ērā kaupapa katoa e hāngai ana ki a Ranginui me ōna uri o te rangi mō runga i te waka.3. He rapu i ngā kupu me ngā tohu katoa mō ngā amotai, ngā ngaru, ngā porotāwhao, ngā kauika, ngā āhuatanga katoa o te moana e pā nei ki te mātauranga whakatere waka.4. He kohikohi i ngā tohu taniwha, i ngā tohu nō te taiao, i ngā karakia whakatere waka.

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Me matatau ki te reo Māori - Kua oti ngā pepa matua o te tohu paetahi2. Me matatau ki te rangahau, ki te rangahau kōrero, ki te kohikohi mātauranga3. E taunga ana ki te whakapuakanga APA4. E hīkaka ana ki ngā rangahau mō runga i te mātauranga whakatere waka

PROJECT ABSTRACT:
<p>Ko te kaupapa o taku tohu kairangi, he kohura i ētehi o ngā take nunui me ngā kaupapa whakahirahira e puta mai ana i mua i te aroaro o te mātauranga whakatere waka me ōna kaumoana i ēnei rangi, ki tā te Māori titiro. Waihoki, ko te pānga o aua take nunui ki te ahurea Māori. Ko te whakaaranga o te reo Māori ki roto i te mātauranga whakatere waka te kaupapa tiakiaiahi i puta i taku tuinga kairangi.</p>

PROJECT ABSTRACT:

Nā reira, tā te rangahau nei, he anga atu ki te ara e puta ai he rongoā ki taua kaupapa nunui i runga ake nei. He āta whakaemiemi i te reo o te mātauranga whakaterere waka. Inā rā, ka tāpaea kia whā ngā wāhanga o te rangahau nei:

1. Ko te reo o te waka: He rangahau i ngā kupu Māori e pā ana ki ngā wāhanga katoa o te waka, ngā tohutohu whakahaere i te waka, tae atu ki ētehi pitopito kōrero mō ngā momo rākau e tika ana hei hanga i te waka.
2. Ko te reo o te rangi: He whakaemiemi i ngā kupu me ngā tohutohu katoa mō ngā whetū, te rā, te marama, ngā huarere, ngā hau, ngā kapua, ngā manu me ērā kaupapa katoa e hāngai ana ki a Ranginui me ōna uri o te rangi mō runga i te waka.
3. Ko te reo o te moana: He rapu i ngā kupu me ngā tohu katoa mō ngā amotai, ngā ngaru, ngā porotāwhao, ngā kauika, ngā āhuatanga katoa o te moana e pā nei ki te mātauranga whakaterere waka.
4. Ko te reo o te wairua: He rangahau i ngā tohu taniwha, i ngā tohu nō te taiao, i ngā karakia whakaterere waka.

Ki tāku titiro, koinei ngā momo rangahau me whakatinana e anga whakamua ai te rāngai whakaterere waka kia whakahokia ake te mana o te reo Māori ki te mātauranga nei, i kaha tohea i taku rangahau, he whatu matahiapo te reo.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 35
Supervisor/s:	Jenny Lee-Morgan	
Project Title:	He whare kei aku ringa: Reimagining kāinga Māori in Tāmaki Makaurau	
Faculty:	TKRI (Te Kotahi Research Institute)	Field: Māori Development

EXPECTED OUTCOMES:

1. Recognising the work of Te Puea and Manurewa marae as radical indigenous innovations in emergency housing provision in 2016, we aim to map the development and progress of these marae to date (in particular Te Puea), and monitor and support their current and future emergency housing provision
2. Develop a comprehensive framework as a guide for other urban marae (who choose to provide similar emergency housing) related to whānau engagement, gaining council compliance, funding, measuring health outcomes, optimizing building design and social services provision
3. Produce a research report and resources to inform key stakeholders and end-users of the potential of marae to intervene in the housing crisis for our most vulnerable whanau in urban regions.

STUDENT TASKS:

1. Undertaking a literature review about Te Puea in relation to manaaki taangata that will support and inform data collection activities
2. Reviewing of literature from relevant sectors related to urban marae in the Tamaki region, in particular Te Puea Marae
3. Collating and recording relevant online/digital information and links related to urban marae in the Tamaki region, in particular Te Puea Marae
4. Referencing and providing a comprehensive annotated bibliography related to urban marae in the Tamaki region, in particular Te Puea Marae.

REQUIRED SKILLS:

1. Knowledge and understanding of kaupapa Maori research
2. Knowledge and understanding of te reo and tikanga Maori
3. Ability to conduct and write a comprehensive literature review (including Maori language sources)
4. Ability to conduct a comprehensive digital search (including Maori language sources)
5. Ability to search and review policy documents

PROJECT ABSTRACT:

He Whare kei aku Ringa is a research project that explores our inherent agency and rights as Māori to determine and create our own housing solutions that cater for the needs and aspirations for whānau in the city.

The project reimagines urban kāinga Māori based on thriving whānau. This research seeks to address key challenges and opportunities for affordable and sustainable housing for urban Maori in the Tamaki Makaurau (Auckland) region. This includes: Mana whenua seeking to strengthen their ahi kā; urban Marae as critical refuges for our most vulnerable whānau; enabling rangatahi to own and make their homes in the city; and equipping whānau with the ability to respond to their own urgent accommodation needs.

This internship relates to one part of the research. This part is a two-year project that focuses on the theme of Manaaki Tāngata (Mana whenua, taura here, taunga hou) - Investigating Urban Marae as critical refuges for our most vulnerable whānau.

The aim of this project is to investigate the capacity of urban marae to assume central roles in the provision of high quality culturally informed emergency housing, as critical interventions in stabilising and enhancing urban Māori whānau lives and informing a newNew Zealand housing continuum paradigm. There is a particular focus on the work of Te Puea and Manurewa marae as radical indigenous innovations in emergency housing provision initiated in 2016.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 36
Supervisor/s:	Noeline Wright & Rachel McNae	
Project Title:	The Architecture of Ownership: Teachers developing agentic practices and professional identity in new schools	
Faculty:	WMIER	Field: Education

EXPECTED OUTCOMES:
<p>The student will:</p> <ol style="list-style-type: none">1. write a report and poster outlining key findings from the investigation2. co-author an article for a reputable journal in the field3. contribute to a colloquium4. Develop a new set of academic skills <p>The Project will:</p> <ol style="list-style-type: none">1. contribute to knowledge in the field5. produce a conference presentation

STUDENT TASKS:
<ol style="list-style-type: none">1. Scope and review: The Scholar will scope the literature, and write a review on: teachers' professional identity; personal and professional efficacy; coping with rapid change; teaching in new schools; teachers and blogging.2. Search: The Scholar will, in consultation with supervisors, establish a set of criteria for selecting New Zealand teachers who blog. The Scholar will apply the criteria, make a list of potential New Zealand teacher bloggers, and confer with supervisors for final selection. Next, the Scholar will, w3. Analysis: The Scholar undertakes the analysis; the Scholar identifies categories and themes from the data; the Scholar selects urls/artefacts regarding relevant posts to illustrate themes and categories.4. Dissemination: The Scholar will: co-author a journal article based on the research; develop a poster explaining the project; participate in a FEDU colloquium; potentially offer a presentation at a student conference.

REQUIRED SKILLS:

1. Information technology skills to navigate, search, scope and locate information on the internet from diverse sources
2. Curiosity with regard to the purpose and focus of the project eg: An interest in education, learning and/or teacher effectiveness and identity
3. A strong work ethic, and a proven track record of working independently and with others
4. Receptivity to feedback, advice and guidance
5. Ability to synthesize literature, analyse data, write coherently and fluently, using APA conventions (but we can assist with developing these)
6. Be proactive in the research process and confident in seeking advice when unsure

PROJECT ABSTRACT:

Innovations in education produce new challenges and opportunities for teachers in navigating teaching in new learning kinds of schools. Changes to the ways student access and engage with new information, and challenges to different views of teaching are some of these challenges. Digital technologies, integrated curricula, collaborative teaching processes and inquiry-based teaching approaches to authentically engage students in their learning experiences, are vastly different from traditional individual classroom environments. IN traditional classrooms, one teacher was responsible for imparting information to one group of students. Now teachers are working in teams with larger groups of students in more open, flexible spaces. There are now mandated shifts in not only the physical architectures of classrooms, but also the relational, cultural and pedagogical architectures. These are described as innovative learning environments (ILEs) and demand significant shifts in teachers' practice and professional identities.

For some teachers, shifting from individuals classrooms, subject silos and teacher-centred pedagogies might challenge their current pedagogical understandings and practices. To date, this shift and how teachers experience it has remained hidden. The more we know about how teachers learn to work in new classroom spaces and what might be beneficial ways to teach and learn in new spaces, the more beneficial it will be for educators and learners in ILE schools. However, teacher practice is a complex phenomenon and a highly complex endeavour. Changing current practices requires dedicated reflective and relational actions (Gibbs, 2012) as teachers examine their practices, implement new approaches and reflect upon their effectiveness on learners.

Digital communications make virtual communication and collaboration accessible and easy. Before this, teachers' professional learning tended to be individualised, but now there is considerable blurring between home and school as teachers and students use digital affordances for learning. However, with little known or written about the impact of ILEs on teacher practice, we need to understand new mechanisms that support teachers in such environments. Teachers are using digital affordances to reflect publicly on their professional learning, document their inquiries, and grow their pedagogical practices and professional identity. These reflections contribute new knowledge about teachers' thinking in new teaching contexts as they seek to make sense of diverse complexities that new learning spaces and conceptions of learning create.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 37
Supervisor/s:	Jane Furness & Judy Hunter	
Project Title:	Using a wellbeing framework to recognise, value and enhance the broad range of outcomes for learners in adult literacy and numeracy programmes	
Faculty:	WMIER	Field: Adult literacy and numeracy education

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. A short report based on the analysis of the data that highlights key themes and includes illustrative participant quotes2. An updated annotated bibliography on interactive learning through social media and digital storytelling3. A draft outline for a conference presentation/academic publication or a research briefing

STUDENT TASKS:
<ol style="list-style-type: none">1. Help to qualitatively analyse transcriptions of interviews undertaken in Phase 1 of the TLRI project to identify themes2. Help to prepare a short report of the outcomes of your analysis3. Help to conduct a short literature search and review to add to the existing bibliography using Zotero (a free bibliographic reference manager)4. Help to prepare a paper for publication or a research briefing for government ministries5. Participate in research team meetings6. The focus and scope of the above tasks will be negotiated with you depending on your skills and interests. We will provide training and you will be closely supervised. We are interested in applicants' excellent analytic skills, and from any social science discipline or education.

REQUIRED SKILLS:
<ol style="list-style-type: none">1. Good general word processing skills2. Good time management and self-organisational skills3. An ability to work in a team and good communication skills4. Good writing skills and familiarity with literature search procedures, with skills in the field of social sciences or education an advantage (guidance and support will be provided);5. Familiarity with using Nvivo qualitative data analysis software package will be an asset but not a requirement6. A general interest in adult learning or adult literacy and numeracy learning7. As this is a cross-disciplinary project it will be open to students with a background in education or social sciences with a keen interest in adult empowerment8. Be based in Hamilton during the period of the summer research scholarship

PROJECT ABSTRACT:

The Summer Scholar project will be part of a 2-year Teaching and Learning Research Initiative funded project (2017-2018). The TLRI project aims to extend the application of an existing wellbeing framework that has been trialled with Maori learners, to diverse learners in community-based adult literacy and numeracy (L/N) education programmes. We started the TLRI project with an understanding that L/N is situated, not just individually but across institutions, cultures, history and tradition, and social and political contexts. These contexts are relational; that is, they involve people as well as text. Further, text has many forms and it can be multimodal e.g. computer use can involve sound, graphics and alphabetic text simultaneously. Research shows that learners gain much more than enhanced L/N skills from participating in programmes; they also gain many other broader outcomes that contribute to their wellbeing. Adults' interest in learning is connected to its relevance to them in their everyday lives. It is also contingent on pedagogies that take into account their multifaceted and often complex situations and pedagogies that recognise and build on their strengths. Often these broader outcomes are the most important to participants in adult L/N programmes.

The focus of our TLRI research is on the broader outcomes of adult L/N programmes. Specifically the research aims to capture the broad range of outcomes that are important to learners in their lives beyond already routinely assessed L/N skills. Facebook has the flexibility to fit learners' lives and to support them as 21st century learners. Therefore we have used it as a vehicle for dialogue among tutors and learners, as the link between L/N learning and enhanced wellbeing is explored.

There are two phases in the project. Phase 1 (2017) explores how ideas about wellbeing are woven into existing programmes and how learners and tutors make links dialogically between literacy and numeracy and broad programme outcomes that impact on wellbeing. Phase 1 findings will inform refinements to the process of identifying and recording these outcomes and links and may lead to refinements in the wellbeing framework itself. The refined approach will be trialled in Phase 2 (2018) with the same programmes and an additional programme at each research site.

We are interested in how using Facebook and classroom dialogue in linking L/N learning with wellbeing works and doesn't work for tutors and learners. The findings will provide insights that will help us expand our understanding of what matters to people in their lives and how programme impacts on wellbeing can be systematically identified and recorded. We anticipate that the findings will enable wellbeing outcomes from adult L/N programmes to be routinely identified and recorded in a way that is manageable for both learners and tutors and that can provide robust data on broader outcomes to complement the skills data already routinely gathered.

You will be working with the research team, under supervision, on part of Phase 1 of the TLRI project. This will involve literature search, data analysis and contribution to reporting this part of the research.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 38
Supervisor/s:	Graeme Doole & Frank Scrimgeour	
Project Title:	Design of policies to address environmental damage from farms	
Faculty:	WMS	Field: Economics

EXPECTED OUTCOMES:

1. Improved capacity of a student to perform key skills in applied research
2. Improved networks for an undergraduate student with interest in environmental policy
3. Strong linkage of a student with a number of key regulatory bodies involved in environmental policy formulation
4. Published paper presenting a new direction for the design of agri-environmental policy

STUDENT TASKS:

1. Identify key papers from published and unpublished literature
2. Identify and synthesise key themes from key papers in the literature
3. Design survey to use in the interview of several key people from agricultural industry
4. Design survey to use in the interview of several key policy makers
5. Undertake survey and record output from these activities
6. Construct conceptual model of system using causal-loop analysis
7. Construct conceptual model of system using stock-and-flow model
8. Identify means to better consider key features of farm businesses in environmental policy design

REQUIRED SKILLS:

1. Ability to identify key sources of information
2. Ability to identify and integrate key themes from within a body of literature
3. Capacity to professionally perform and record data from interviews
4. Ability to develop and interpret simple conceptual models utilising principles of system design and analysis

PROJECT ABSTRACT:

The New Zealand media highlights daily the impact of New Zealand pastoral farms on the environment. These impacts stem from soil erosion to nitrogen leaching to greenhouse-gas emissions. Environmental economics provides a broad set of tools to design and compare different policy approaches to help reduce these impacts. However, none of these explicitly address the things that make farms rather unique in the business world.

First, the core asset of these businesses is land that appreciates, rather than depreciates, over time. Second, the annual return on this chief asset is often low, compared to the income received from capital gain over the life of the farming enterprise. Last, many farms carry high debt levels, especially in the dairy industry.

The goal of this study is to develop a broad-level understanding of how these features of farms could be better considered in the design of environmental policy.

The work will involve two stages. The first stage will involve the collection of information through a literature review and several interviews with farmers, agricultural researchers, and policy makers. The second stage will involve the development of two conceptual models utilising techniques taught at first-year level within the Waikato Management School. These conceptual models will bring together key insights from the data-collection phase, and provide insights into potential ways to better design policies to address environmental damage from New Zealand farms.



ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 39
Supervisor/s:	John Oetzel	
Project Title:	Virtual health care trial to prevent recurrent rheumatic heart disease amongst Waikato young people with rheumatic fever	
Faculty:	WMS	Field: Health and social science

EXPECTED OUTCOMES:

1. Provide an assessment of the effectiveness of the incentivised intervention that can be used for policy and practice guidelines for the DHB
2. Provide information that helps to determine the cost effectiveness of the incentivised intervention
3. A manuscript for publication

STUDENT TASKS:

1. Interview 20 patients
2. Transcribe interview data
3. Analyse data
4. Write up a manuscript on the findings (may include some literature review)

REQUIRED SKILLS:

1. Good conversational skills (e.g., listening and asking questions)
2. Critical thinking skills
3. Knowledge of or experience with Maori and Pacific Islander youth
4. Decent writing skills

PROJECT ABSTRACT:

The primary objective of the project is to develop and test a method to improve adherence to RF monthly penicillin injections within the Waikato DHB area by re-engaging with non-compliant patients and incentivising them to restart monthly penicillin injections as well as decreasing numbers of patients who become non-compliant through use of incentives and virtual care. Specifically, we provide a cell phone and monthly top-ups for patients who receive their monthly injections. We have been collecting data about their injections and the time spent by nurses in administering injections and following-up with patients to determine whether this incentive is effective and saves money and time.

PROJECT ABSTRACT:

In addition, we would like to also collect information to identify patient perceptions about the effectiveness of the intervention. More specifically, it address the following research question:

RQ: What are perceived benefits and costs of an incentive programme for encouraging monthly penicillin injections for compliant and non-compliant youth from the Waikato RF registry?

We think patient perceptions are important information that will complement the information about adherence and time that we are already collecting. We will have a student conduct approximately 20 interviews with patients who completed the study. The student will be trained and follow an interview guide created by the research team to conduct the interviews. The interviews will be completed in person or over the phone and last approximately 30 minutes each. All interviews will be recorded and the student will transcribe the interviews. In addition, the student will be trained in data analysis and complete the analysis. The student will also help to write a manuscript about the patient perspectives and this may involve some library research as well. The student will be a co-author on the manuscript that is submitted for publication. All parts of the project will be supervised and guided by the project supervisor.

This project is important because youth who have had Rheumatic Fever (RF) need monthly penicillin injections to prevent Rheumatic Heart Diseases (RHD). About 20 % of 14- 21 year olds on the Waikato RF registry are non-compliant and the injections are painful leading to risk of future non-compliance. Efforts to increase compliance have been unsuccessful. Non-compliance has significant monetary and social costs for patients and the health system. Thus the student's involvement in this project presents an opportunity to make a positive and concrete contribution to patients and the health system in general.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 40
Supervisor/s:	Michael Cameron	
Project Title:	Role Models and the Gender Gap in Economics	
Faculty:	WMS	Field: Economics

EXPECTED OUTCOMES:

1. The research project will significantly increase the successful applicant's applied research capability, especially in data manipulation and analysis, and report writing.
2. A report that will be developed into an article for submission to an international journal.
3. A poster to be displayed at the Summer Research Scholarship end function
4. The University will benefit by developing a better understanding of how to attract (and retain) female students in the Economics major, where a significant gender gap is currently apparent. The findings may also be applicable to other disciplines (e.g. science, computer science, statistics) where gender gaps are also the norm.

STUDENT TASKS:

1. Summarise and review the literature on the gender wage gap in economics
2. Familiarise themselves with the ECON100 Student Survey dataset, and collate additional data from student administrative records
3. Produce a set of statistics that summarise how the gender gap in economics has changed (or not) over time
4. Develop a simple statistical model of the probability of a female student enrolling in (and completing) an economics major, and potentially extend the simple model to account for selection bias and other statistical issues
5. Write a report describing the methods and results, and commenting on the plausibility or otherwise of the estimates
6. Prepare a poster summarising the research to be displayed at the Summer Research Scholarship end function

REQUIRED SKILLS:

REQUIRED:

1. Statistical analysis skills (e.g. STAT221, ECON204), including proficiency in using Excel

DESIRABLE:

1. Familiarity with a statistical package, eg R, Stata, or SAS
2. Good written communication skills

PROJECT ABSTRACT:

It is well established in other countries that there is a substantial gender gap in economics, at undergraduate, graduate, and PhD level. At every level there are significantly more male students than female students. This appears to be the case in spite of female students in undergraduate economics performing equally well to their male peers.

One theory is that female students in introductory economics suffer from a lack of role models in the form of senior female economics students and female faculty. One implication of this is that students who are exposed to female role models may be more likely to enrol in the economics major.

In this project, the student will use multi-year data on students in ECON100 collected from student surveys conducted in the first week of classes, paired with data on their tutors, to evaluate whether having a female tutor affects the probability of a female student enrolling in (and completing) an economics major.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 41
Supervisor/s:	Michael Cameron	
Project Title:	Estimating international population movements by ethnic identity	
Faculty:	WMS	Field: Population Studies/Economics

EXPECTED OUTCOMES:
<ol style="list-style-type: none">1. The research project will significantly increase the successful applicant's applied research capability, especially in data manipulation and analysis, working with external stakeholders, and report writing2. A research report for Statistics New Zealand3. A poster to be presented at the Summer Research Scholarships end function4. The University will benefit from promoting a closer research relationship between the National Institute of Demographic and Economic Analysis (NIDEA) and Statistics New Zealand. This project builds on work conducted by students during the 2015/16 Summer Research Scholarships, and continues a fruitful research collaboration between the University of Waikato and Statistics New Zealand. It will also encourage use of the IDI lab at Waikato.

STUDENT TASKS:
<ol style="list-style-type: none">1. Familiarise themselves with the IDI, including gaining access to the data and undergoing confidentiality training2. Use the IDI to link ethnic identity data from one or more administrative data sources (health or education data) to data on permanent and long term arrivals and departures3. Produce estimates of the number of arrivals and departures, by ethnic identity4. Validate the estimates produced by comparing the inferred affiliations from the administrative data sources with affiliations that could instead be attached to the data using the 2013 Census5. Write a report describing the methods and results, and commenting on the plausibility or otherwise of the estimates, pointing to particular ethnicities, age groups, or other subsets where the methods appear to be performing badly or well6. Prepare a poster summarising the research to be displayed at the Summer Research Scholarship end function

REQUIRED SKILLS:
REQUIRED: <ol style="list-style-type: none">1. Statistical analysis skills (e.g. STAT221, ECON204), including proficiency in using Excel
DESIRABLE: <ol style="list-style-type: none">1. Familiarity with a statistical package, eg R, Stata, or SAS, or familiarity with MySQL1. Good written communication skills

PROJECT ABSTRACT:

Statistics New Zealand's estimates and projections of ethnic populations at both the national and the subnational level require estimates of external migration by ethnic identity. Arrival and departure cards currently provide good data on migration flows, but provide no direct data on the ethnic identity of travellers. This may limit the accuracy of estimates and projections of ethnic populations. There is therefore great interest in investigating ways of 'attaching' ethnic identity to arrival and departure data.

The Integrated Data Infrastructure (IDI) is a promising source of data on external migration. The IDI is a collection of linked administrative datasets, housed at Statistics New Zealand, and is increasingly being used for research with substantial policy and practical applications. The University of Waikato has access to the IDI via a datalab. Arrivals and departures data are included within the IDI, as are Census and other administrative data that include ethnic identity data, meaning that it is possible to infer ethnicity for travellers.

In this project, the student will develop new estimates of arrivals and departures by ethnicity, age, and sex, at the national level, that can be used for developing ethnic population estimates and projections.

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ACADEMIC PROJECT SUBMISSION DETAILS:		PROJECT #: 42
Supervisor/s:	Joanna Scott-Kennel & Catherine Welch	
Project Title:	Four Decades of Internationalisation Research: Meta-Synthesis, Content Analysis and Critique	
Faculty:	WMS	Field: International management, strategy

EXPECTED OUTCOMES:
<ol style="list-style-type: none"> 1. To provide the data for a review paper which will be submitted to an A journal, e.g. Journal of International Marketing, International Journal of Management Reviews (these journals have been chosen because they accept review articles on the topic). 2. A database of two related literatures which can be used for future research projects, both conceptual and empirical with a view to publishing in top journals in the international management field. 3. Familiarity with latest software tools and development for systematic reviews (e.g. Nvivo or EPPI-Reviewer 4). 4. Furthering of international collaborative research linkages with leading academics offshore, namely Catherine Welch of the University of Sydney, who will be jointly supervising this project. Participants at UoW will benefit from the knowledge of an internationally renowned researcher in this field. 5. Outcomes for the student include: development of skills associated with preparation of systematic literature reviews to the standard required by top journals; content analysis; critical evaluation of research and interpretive approach to data analysis; use of software tools; writing up and presenting academic research results (e.g. literature review, template and model design, research poster).

STUDENT TASKS:
<ol style="list-style-type: none"> 1. Systematic search of relevant library databases, using and refining the most effective search strategies. 2. Selection of relevant literature, recording and justifying decisions made around the scope of the review (i.e. exclusion criteria). 3. Learn to use an appropriate software tool for systematic reviews and data analysis (e.g. EPPI-Reviewer 4, NVivo). 4. Content analysis, using software and guided by supervisors (see below for detail). Development of a coding protocol for content analysis. 5. Meta-synthesis around key themes, terminology, method, sampling etc., to be identified jointly with supervisors (a pre-study has already been undertaken by the supervisors in order to identify appropriate research questions and the expected contribution of the research to theory). 6. Assembling basic descriptive data about the developments in the field e.g. the number of studies occurring across the time period, the occurrence of major themes and those of theoretical significance. Produce tabular and graphical displays of the results. 7. Write a report comparing and contrasting the literatures on a selection of the themes identified, refined and emerging from the research. 8. Prepare a poster summarising the research to be displayed for the summer research scholarships function..

REQUIRED SKILLS:

1. Competency with use of library and other academic databases for research.
2. Familiarity with Microsoft Excel and an ability to learn and apply new software tools.
3. Ability to conduct a thorough and extensive literature review.
4. Familiarity with academic research in the international business/strategy field with a view to comparing and contrasting the main tenets of the literatures and samples used.
5. Critical and analytical thinking.
6. Good written and communication skills.

PROJECT ABSTRACT:

The internationalisation of the firm is one of the most popular topics in the area of international business. Moreover, it is central to the future of organisations in New Zealand. Research on the topic emerged from studies into the exporting behaviour of firms in the 1970s. While there has been continued interest in export behaviour, recent years have seen growing popularity of so-called Born Globals (BGs) and international new ventures (INVs). Such firms were introduced as “a new and growing phenomenon” (McDougall, Shane and Oviatt 1994) and as a “relatively new type of firm” (Knight and Cavusgil 1996). But how new a phenomenon are they, when we systematically compare the exporting and BG/INV streams of research? We find that while the two literatures are related there is yet to be a systematic and critical content analysis of their results, contributions and deficiencies.

This project will involve a systematic search for relevant literature on exporting and born global firms; recording and justifying decisions made around the scope of the review; learning to use an appropriate software tool for data analysis (e.g. EPPI-Reviewer 4, NVivo); content analysis and meta-synthesis; critical comparison of the two literature streams; tabular and graphical displays of the results; preparation of a report and a poster summarising the research.

This project offers the opportunity for the participants to engage with a research agenda led by Associate Professor Catherine Welch who has critically re-evaluated the current state of internationalisation research (see Welch, Nummela and Liesch 2016; Welch and Paavilainen-Mäntymäki 2014). The project is designed to drive this research agenda forward and will offer new insights to the limitations and unrealised potential of existing BG/INV research. In undertaking this meta-synthesis, the project team will also make use of the latest techniques and advances for systematic reviews in the social sciences.

References:

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