Research & Creative Activity SHOWCASE 2014

original painting by Miranda "Randy" Klein, Fine Art diploma 2014
MacEwan University is an undergraduate institution with a passion for excellence in teaching and learning. And an important part of our commitment to excellence in undergraduate education is the way in which the outstanding scholarship of our faculty is integrated into the learning experiences of our students. In this showcase you will discover why, at MacEwan University, we believe that research and creative activity need not wait until graduate school or be the purview only of "research-intensive universities." For us, research and creative activity is an everyday reality. New and important knowledge is created and communicated here at MacEwan every year as a collaborative adventure of discovery, integration and engagement. I encourage you to read about the many innovative research initiatives that make MacEwan University such an exciting place for our faculty, staff and students to work, study and learn together.
A special thanks to MacEwan University’s various community and industry partners who contributed not only to the projects featured within this publication but continue to collaborate on various research and innovation engaging our students, faculty and the community at large. Thank you to Syncrude for their ongoing sponsorship, in part, of the annual Student Research Week, whose student presenter abstracts are featured within this publication. In its third year, this week-long event, is just one of the many successes of the university’s Undergraduate Student Research Initiative dedicated to fostering student involvement in research, scholarly activity, and creative expression. Thank you to faculty for presenting the research featured within, continuing to share their scholarship that inspires teaching and learning at MacEwan. Finally, thanks to the various students, faculty and staff who contributed to developing this publication; including:

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We look forward to once again celebrating in 2015 at “iResearch” Student Research Week, January 26 to 30.
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Intricacies of a Seashell by Miranda “Randy” Klein, Fine Art diploma 2014
When you think about “apprenticeship,” you likely imagine a very specific kind of educational setting where skilled individuals with specialized training and with years of practice impart to their students the benefit of their experience. This is often a time when students are encouraged to take what they have learned and to apply it. But a publication like this one should be a reminder that apprenticeship is an important element of all post-secondary study throughout many different kinds of institutions, and the things we teach within the Faculty of Arts and Science, and across MacEwan University, are rooted in our experiences beyond our walls. Our faculty members bring to the classroom and to the laboratory things we encounter in the world around us, with the certainty that the work we undertake with our students will find its way back into the community for your consideration.

The 28 students from our faculty profiled here are enrolled in programs across eight different academic units, demonstrating how sparks of curiosity flare and help connect the humanities, the social sciences, and the natural sciences. As you will discover, our students are examining the influence of women writing for Restoration-era theatre, how social programming helps at-risk youth in Edmonton, and the limitations of magnetic resonance imaging in medical diagnoses.

The question of how we might all better live in our world runs through these projects, as it runs through the work of the eight faculty members profiled. From the connection between literature and music, through the impact of property theft on our community, to the importance of mathematical modelling, these projects also show how our researchers have developed their interests over time, having begun, in some cases, from curiosity piqued as they, too, were introduced to their respective disciplines as undergraduate students.
Abstract. Mathematical models are commonly used to describe processes or phenomena of interest to engineering, economics, biological and social sciences. Since the rate of change is mathematically expressed using derivatives, large classes of mathematical models are in fact expressed by differential equations. Moreover, mathematical models of complex phenomena often contain a variety of uncertainties in regard to the parameter values or the exact form of the corresponding differential equations. These uncertainties are usually incorporated in the mathematical model using stochastic differential equations. Most of the time it is impossible to find the exact solution of the stochastic differential equations, so there is a big interest to develop numerical methods to accurately approximate these solutions.

Numerical methods for stochastic differential equations frequently involve elaborate methods including complex simulations of a large number of samples that introduce different kinds of errors in the approximation of the solution. In practical applications it is very important to be able to estimate the accuracy of the numerical method. The main contribution of this study is an exact formula for the global error associated with a numerical scheme for solving a stochastic Hamiltonian system.

Deterministic Hamiltonian systems are used to model physical systems that preserve the energy. The energy is no longer preserved by stochastic Hamiltonian systems; however, some other geometric properties such as symplecticity are still invariant in the stochastic case. Since the approximation of the solution is more accurate if it has the same properties as the exact solution, this work regards a numerical scheme that preserves the symplectic structure. This numerical scheme gives very accurate results for long-term simulations.
The Academic Conference as Pedagogical Site: Research and Teaching at Interdisciplinary/Multidisciplinary Woolf

Abstract. In June 2012, at the University of Saskatchewan, the annual International Conference on Virginia Woolf was held in Canada for the first time. The conference series regularly brings scholars and graduate students together to explore Woolf’s literary texts, as well as her encounters and experiences during the modernist period. A different theme is highlighted each year. In 2012, Interdisciplinary/Multidisciplinary Woolf engaged delegates in interdisciplinary and multidisciplinary perspectives on Woolf’s writing and career.

This presentation is based on collaboration with Dr. Ann Martin, Assistant Professor of English at the University of Saskatchewan and lead organizer of the Woolf conference. Kathryn Holland addresses the learning initiatives designed for Interdisciplinary/Multidisciplinary Woolf, which included undergraduate and graduate courses, experiential learning opportunities and reciprocal teaching situations. Reflecting upon the conference’s pedagogical elements, she aims to further theorize understandings of interdisciplinary in relation to scholarly teaching perspectives. Recognizing the productive tension between established institutional practices and the unscripted, unexpected applications of resources that arise in the interstices of institutional frameworks, the organizers of Interdisciplinary/Multidisciplinary Woolf view multi- and interdisciplinary works as emerging from a grounded, individualistic approach to disciplines and the possibilities they offer specific researchers. The objective of the conference was to extend these possibilities to students.

Inspired by scholarship on modernist literature and the dynamics of intertextuality, this research aims to avoid the potential reduction of complexity that can develop from syncretic approaches to learning and teaching and to examine inter- and multidisciplinary research and pedagogy that reinforces the ability to conceptualize and mobilize knowledge in local moments. This research advances understandings of how scholarly conferences can incorporate substantial learning opportunities for postsecondary students who intend to build careers in and beyond academia. Kathryn Holland shares an example of teaching and learning situations associated with the conference, and considers the outcomes, both qualitatively and quantitatively and further reflects upon interdisciplinary and conference pedagogy.

Kathryn Holland, D.Phil., teaches a variety of literary genres and periods, and publishes on British and transnational modernism. She is the co-editor of Interdisciplinary/Multidisciplinary Woolf: Selected Essays from the 22nd Annual International Conference on Virginia Woolf. Kathryn’s research interests include Victorian and modernist literature, digital humanities, gender studies and feminist theory.
Dr. Kevin Judge  Biological Sciences

The Evolution of Aggressive Behaviour and Weaponry in North American Field Crickets

Abstract. Sexual selection research has traditionally focused on female choice over male-male competition because the former mechanism was initially controversial and its theoretical foundations were not immediately recognized. This has resulted in the underdevelopment of research into the evolution of male-male competition and the traits that males use during aggressive physical combat over females – weaponry – despite the fact that the natural world abounds with examples of male weapons.

This presentation discusses current studies into the relationship between male weaponry and aggressive behaviour in nine species of field crickets, a group that has become a model system, both for the study of male-male competition, as well as for the sport of cricket fighting in China. Over the past two years, aggressive contests between pairs of male crickets have been videoed and then their bodies preserved in order to measure body size and weaponry size, with the aim of understanding what traits cause males to win fights over territories and females.

Previous work has shown that in *Gryllus pennsylvanicus*, males with relatively larger heads and mouthparts win more fights than males with relatively smaller heads and mouthparts. The current study will test this finding across nine species found in North America with the predictions that:

1. Species with the greatest degree of weaponry (i.e. head and mouthparts) elaboration will fight more often, and
2. More closely related species will be more similar in weaponry elaboration than more distantly related species.

Preliminary results of this research for three of the nine species ([*G. firmus*+ [*G. pennsylvanicus*+*G. ovisopis*]]) are presented and discussed in the light of ancient Chinese practical knowledge of cricket aggressive behaviour.
Dr. Marco Katz  English

Critical Music: How Notes Discuss Words

Abstract. Language performs badly when interpreting music, observes Roland Barthes in his seminal work, *Image — Music — Text*. Nevertheless, few readers have disputed the right of critics to write words that praise or denounce the composition and performance of musical notes. Words are the fundamental element of literature and are regularly employed in observations on all of the other arts; but this need not always remain a one-way stream of expression. A film, for example, can offer fresh perspectives on the pages it enacts. Paintings by Salvador Dali added new perspectives to *El ingenioso hidalgo don Quijote de la Mancha* that changes subsequent readings of the volumes by Miguel de Cervantes. Musical scores also fit into the scope of literary criticism; although, less obviously. Listeners accept Felix Mendelssohn's treatment of Shakespeare in *A Midsummer Night's Dream* and they recognize the song cycles of Franz Schubert, Robert Schumann and Ned Rorem as new settings; however, listeners have not always understood these works as critical commentaries. This aspect of music becomes clearer when one hears the transformation that a literary work undergoes when subjected to different musical renderings. *Der Erlkönig* by Johann Wolfgang von Goethe changes appreciatively in the distinctive versions created by Schubert, Ludwig van Beethoven, Carl Friedrich Zelter and the Canadian composer Marc-André Hamelin. These critics write with notes.

This presentation considers this reversed relationship between the musician and the critic by listening to selected compositions of music and poetry, including Marco Katz's song cycle based on poetry by Chilean Nobel Laureate Pablo Neruda. Notes, as well as words, are employed to accomplish this realization, with recorded excerpts as well as live music and song. Music, it turns out, performs well when interpreting language.

Marco Katz, PhD, is a literary scholar as well as a musician. He is the author of *Music and Identity in Twentieth-Century Literature from Our America*. His musical work has included collaborations with Mon Rivera, Cab Calloway and Charlie Palmieri. Marco’s research interests include Latin American and Cuban studies, Latin American literature, political theory and social movements, cultural anthropology and music analysis.
Dr. Hugh McKenzie, PhD, is a bioarchaeologist interested in how individual actions and social structures become embodied – literally – within human bodies, living and dead. This work includes investigating cranial modifications as a means of symbolizing social identities. Hugh’s research interests include human osteology, mortuary archeology and the culture of Middle Holocene hunter-gatherers in Asia and Siberia.

Dr. Hugh McKenzie  Anthropology

**Alberta Historical Cemeteries Project: A Multidisciplinary Community-Engaged Research Project Into Alberta’s Past**

**Abstract.** Cemeteries are not only repositories of the dead: they reflect individual and group identities and an attachment to a place. They play a central role in the social and political history of local communities. Unfortunately, scarce resources mean that many of Alberta’s over 2,000 burial grounds are unregistered, poorly maintained and inadequately documented. Although numerous community organizations are working to locate and document Alberta’s cemeteries, each group has its own specific focus such as headstone photos, genealogical information and transcription indexes. These records contain limited information on the social, historical, and environmental contexts of the graves and cemeteries, making the data useful for genealogical research but of limited value for the investigation of how burial practices reflect patterns of settlement, kinship and economic prosperity. In spring 2013, we initiated a multidisciplinary (anthropology, history, computer science) and community-engaged research project to address these problems. This presentation discusses the origins and goals of this ongoing project along with the progress made so far.

This project is being done in collaboration with Dr. Robert Irwin, Department of Humanities; Dr. Indratmo, Department of Computer Science; Dr. Nancy Lowell, University of Alberta; Alberta Family Histories Society; Alberta Genealogical Society; Archaeological Survey of Alberta; Canadian Headstone Project; CanadaGenWeb’s Cemetery Project; and Service Alberta.
Take a Chance On Me: The Role of Music in Domain-Specific Risk Taking

Abstract. Although individuals’ risk preferences have been investigated across a range of decision-making situations and incentives, little is known about how auditory stimuli such as music and sounds affect situational preferences over risk and uncertainty. While there has been research looking into the correlation between music preference and risk-taking behavior, there has yet to be an investigation into the direct impact of listening to different types of music on immediate risk-taking. This research takes an interdisciplinary approach, integrating the fields of marketing, psychology, and economics to discuss the impact of listening to different types of music on risk-perceptions and risk-preferences. While it is often said that people are risk-averse, it has been shown that the degree of risk-taking in one decision-making domain does not necessarily translate into risk-taking preferences in other domains. This research indicates that over and beyond mere incentives, environmental cues—such as music—have a significant impact on both the perception of the degree of risk and the preference for risk taking.

This research is being done in collaboration with Dr. Rickard Enstroem, Chair of Decision Sciences and Supply Chain Management in the School of Business.

Rodney Schmaltz, PhD, is the founder of a social psychology and music research program at MacEwan University. He is also interested in pseudoscientific thinking, alternative medicine-focused pseudoscience and pseudoscientific beliefs. Rodney’s research focuses on the social and applied psychology of music, such as how popular music is an expression of social and self-identity.
Abstract. The media tends to sensationalize violent crimes such as armed robbery and homicide in their news coverage. However, we rarely hear about property crimes because they aren’t sexy. Within any given year, property crimes account for 80 per cent of the overall crime rate and represent an event most people could encounter on a daily basis.

This presentation sheds some light on the incidence, prevalence and correlates of breaking and entering, which is considered the most prevalent property crime in Canada. The study utilizes six years of police reported calls for service data within the City of Edmonton. Despite the nature of under-reporting and the fact that the majority of cases remain unsolved, this study suggests practical preventive techniques to reduce victimization.
Real-Time Visual Processing in the Absence of Conscious Vision

Abstract. Our ability to consciously "see" the world is created through the coordinated activity of multiple brain regions working in concert. If one of these brain regions is damaged, disorders of visual consciousness can arise. This presentation discusses work investigating "blindsight," an intriguing condition in which a patient is blind and claims to see nothing following brain damage; however, specialized testing with some of these patients reveals that they are still able to process visual information from their blind field outside of awareness. It will review data emphasizing that it is possible for patients to carry out complex actions towards objects such as avoiding obstacles and picking up objects, and even process emotional information (i.e., whether a face looks happy or afraid) without any conscious vision. These case studies have important implications for our understanding of:

1. How the visual system is organized;
2. The extent to which our brain can process visual information outside of awareness; and,
3. How we might be able to help better treat patients with vision loss following brain damage.

This work was funded through Postdoctoral Fellowships from the Heart and Stroke Foundation of Canada as well as Natural Sciences and Engineering Research Council (NSERC.) Much of this work was carried out during a Postdoctoral Fellow with Dr. Melvyn A. Goodale at the University of Western Ontario, but continues to be Dr. Striemer's research at MacEwan.

Dr. Christopher Striemer is an Assistant Professor in the department of Psychology and an adjunct faculty member at the Centre for Neuroscience at the University of Alberta. Christopher's primary research interests are the cognitive neuroscience of attention, perception, and visuomotor control, and how these different mechanisms interact to allow us to carry out complex behaviours.
Thomas Bailie is pursuing a Bachelor of Arts Psychology (Honours). He has conducted five studies at MacEwan University as a volunteer, and has further coordinated and conducted research as a research assistant. Thomas plans to attend graduate studies and pursue a career in the mental health community.

Thomas Bailie BA 2014

Vicarious Hope and Vicarious Gratitude

Abstract. Vicarious hope and vicarious gratitude are terms used to describe the feelings an individual experiences when he or she is hopeful or grateful for an event observed in another person’s life, regardless of whether the observer is personally impacted by the event. Although there has been little empirical consideration given to the subject, recent studies suggest that demonstrating a high frequency of vicarious hope and gratitude and showing an interest in others’ lives can have an influences on human behaviour.

In this experiment, participants were asked to generate a list of 10 items that they were either hopeful or grateful for. Some participants were primed to think of others and some were asked to list general items. Participants were also asked to frame the list of items within the period of a month or year. In addition, participants were asked to complete a series of standardized measures that assessed their level of empathy and their self-construal type (independent vs. interdependent). An individual with an independent construal minimally includes others in their sense of self, while a person with an interdependent construal is more likely to include others within their self-conceptualization to a much greater degree.

The results of this study demonstrated that individuals do regularly generate instances of vicarious hope and gratitude; they are more likely to list vicarious items in the primed condition. Furthermore, individuals who demonstrate high levels of empathy, tend to generate significantly greater instances of vicarious emotions than those with low levels of empathy. This study is important because it contributes to greater insight on how well-being can be strongly associated with vicarious hope and gratitude.

Dr. Andrew J. Howell is an Associate Professor in the Department of Psychology at MacEwan University. Trained as a clinical psychologist, Andrew’s research now falls within the area of well-being. He has published such topics as mindfulness, nature connectedness, apology willingness, and stigmatizing language in relation to mental disorder.
Garnet Borch  BSET 2013

Algorithms for the Automatic Placement of Labels in Images

Abstract. Growing class sizes and decreasing budgets are becoming a reality in today’s educational institutions. The result is an increased workload for the instructor on tasks such as creating and marking assignments and exams. In addition to this, increased instances of copyright infringements are occurring in the educational system caused by students illegally downloading teacher’s solution manuals from the World Wide Web. The result is a greater need to research and create software which can automatically generate (and mark) new assignments and exams with solutions. Difficulties arise when creating such software when labels/dimensions overlap one another making the resulting image difficult for students to extract the relevant information.

The goal of this project was to develop an algorithm to prevent labels from overlapping in images in assignments. The algorithm used was based on a combination of ideas from the literature review and new ideas from group discussions. Using Java as a programming language, the algorithm was then implemented and tested. The result was an algorithm that could properly place labels on randomized images.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

After graduating with a 4.0 GPA from the Engineering Transfer program in 2013, Garnet spent the summer researching at MacEwan University. His experience with the USRI has inspired him to continue research and product development within the energy sector.

FACULTY SUPERVISOR

Garnet was mentored on this project by Dr. Jeffrey Davis. After receiving his PhD from the Swiss Federal Institute of Technology in 2004, specializing in thermal hydraulics in nuclear reactors, Jeffrey worked on the Phoenix Mars Mission. Currently, his research focuses on the development of software to automatically assess students. Additionally, he is involved with research on the numerical modeling of instabilities which develop between two fluids, with application to both the energy and health sector.
An Inquiry into the Lack of Nightmare Protection Associated with Video Game Play by Female Gamers

Abstract. In a recent study, Gackenbach, Ellerman and Hall explored the experience of nightmares in both female and male military gamers. The nightmares of the male gamers followed a “fight-or-flight” pattern, similar to the video game environment itself; however, females did not share this experience. A follow-up study with students found a similar pattern: Male gamers found nightmares empowering while female gamers found them frightening.

This study explores the dichotomy between male and female high-end gamers. Female gamers may utilize different coping styles than male gamers. Females may be coping by “tending-and-befriending.” Tending responses occur when one attends to others involved in the threat. Befriending responses occur when one attempts to seek comfort in others. Males may be more inclined to “fight-or-flee.” Fight responses occur when one fights back against a threat; a flight involves fleeing the threat altogether.

The second hypothesis tested in this study explored differences in game genre. Males may play more explicit video games such as first-person shooter games, while females may play more casual games.

Thirdly, it was hypothesized that females may experience more “stereotype threat” (a perception that negatively affects performance) in the gaming world, leading to a reduction in nightmare inoculation in the dream world.

Participants for this study are recruited from introductory psychology courses. Four-hundred-fifty participants are expected to participate in this study. Participants complete the entire online survey through the Qualtric system. This study utilizes five questionnaires: demographics, media use history, Brief Cope Scale, Stereotype Threat (SIAS), and a dream questionnaire. Information has been included giving counselling contacts in the event that reporting a nightmare becomes distressful for participants. After the data has been gathered, the dreams will be coded by independent raters using the Threat Simulation coding systems. All data collected cannot be linked back to individual participants.
Joanna Calderon BA 2015

Patient Motivation Control in Health Behaviours

Abstract. The spectrum of addiction haunts people from all walks of life. Substance abuse is accompanied by addictive behaviours, medical problems and histories of abuse and neglect in addicted patients. People caught spiralling downwards are rarely able to pull out of the crisis on their own; often they relapse back into addition. The relapse of addiction is not due to the substance itself, but rather to addictive behaviours associated with substance abuse and other psychological problems. Compounding the issue, painful withdrawal symptoms act as powerful reinforcers of addiction by prompting further compulsive drug-taking. Proponents of the theory of change emphasize the role of self-regulation stimulation that helps with withdrawal symptoms – an approach that taps into client motivation.

This research looks at the motivation concept in the context of addiction withdrawal. Motivation is used in clinical practice as a reliable indicator of patient engagement at the present moment. However, the very high percentage of addiction relapse could not be explained in patients with high motivation. This research will look at motivation as a feeble concept: easy to be activated in positive relational/community contexts and easy to be suppressed in negative relational/community contexts.

Justin Wong, MSc, teaches psychology at MacEwan University. For the past 25 years he has worked as a research consultant in the area of First Nations health, with a special focus on addictions and youth suicide prevention. He is currently the evaluator of the Alberta Region Federal-Provincial First Nations Mental Health Service Integration Project funded by the First Nations and Inuit Health Branch.
Dawn Doell graduated in April 2014 with a Bachelor of Science, majoring in biological sciences. Working with her faculty advisor, David Locky, she is currently seeking publication of the work featured. Dawn is also seeking opportunities for a master’s program in resource management and environmental sciences. She is the proud recipient of the Enbridge Environmental Sustainability Leadership Award, and the Undergraduate Achievement Award from the Golden Key International Honours Society.

**Dawn Doell  B.Sc. 2014**

**Wildlife Rehabilitation in Alberta: A Retrospective Analysis of Birds, Mammals and Herptiles, 1990-2013**

**Abstract.** This study is the first known assessment of wildlife rehabilitation in Alberta. Using a retrospective analysis of patient intake data at the Wildlife Rehabilitation Society of Edmonton (WRSE), this study summarizes temporal trends in wildlife admission to determine the overall success rate of rehabilitation and assess reasons for admission between 1990 and 2012.

The study utilizes a 22-year dataset of mammals, birds and reptiles. A documented 13,375 individuals were admitted to WRSE, comprising of 271 identified species. More stringent data collection methods have allowed a more accurate verification of the yearly successful release rate; resulting in 45 per cent of animals admitted to the WRSE being successfully released back to the wild. The majority of animals in this study were admitted to the WRSE due to human-induced injury such as window-strikes or pet-attacks. The second most frequent cause of admission was orphaned juveniles.

The WRSE has admitted 942 animals listed as Sensitive/Species of Special Concern, May Be at Risk and Species at Risk. More importantly, 74 per cent of these animals were admitted in the last 12 years, including 90 per cent of all individuals listed as Species at Risk. Sixty-three individuals are currently listed as At Risk in Alberta, comprising four distinct species: the Ferruginous hawk (*Buteo regalis*), Piping plover (*Charadrius melodus*), Trumpeter swan (*Cygnus buccinator*) and Peregrine falcon (*Falco peregrinus*). This study provides a 22-year overview of wildlife trends at WRSE, addressing critical knowledge gaps in the primary literature, and contributing a unique data-set to the natural history of Alberta; the first known retrospective analysis of wildlife intake.

This research was made possible with support from Wildlife Rehabilitation Society of Edmonton.

**FACULTY SUPERVISOR**

Dawn was mentored on this project by Dr. David Locky, Assistant Professor and wildlife and wetland researcher in the Department of Biological Sciences. His research interests and expertise cover a wide range of topics related to wetland and aquatic ecology, including wetland classification and evaluation, plant diversity and ecology, wildlife ecology, natural and anthropogenic impacts to ecosystems, constructed and restored wetlands, and wetland policy and practice.
Carson Flockhart BA 2014 with Alison Ditner BA 2014

The Relationship Between Video Game Play and Dreams Through Movie Viewing

Abstract. Previous research examining the relationship between video game play and nightmares has suggested that males who play combat-centric games may perceive, in dreams, the same situations as less threatening or not at all threatening. By examining the relationship between viewing a frightening film clip and video game play, this study aims to create a better understanding of how different visual media experiences can influence subsequent dreams, especially nightmares.

The research participants are males who play video games, some frequently and others less so. They were asked to complete surveys regarding their media use history and personality prior to being exposed to the media tasks. In the laboratory, participants are assigned to:

1. Play one of two styles of video games: combative or non-combative, or
2. Search for scholarly articles online.

A film clip from the 1990 thriller Misery (based on the novel by Stephen King) is shown to all participants in a counterbalanced order. This film has been chosen as it evokes strong emotions and feelings in the participants. After viewing the film clip and performing the assigned computer activity, participants completed questionnaires tailored to each activity. After the in-lab portion of the study, participants were then asked to recall a dream on a subsequent night. These dreams are analyzed in terms of the degree of threat perceived in them. This project finished its initial run but is being continued to bolster the numbers of participants in certain groups. This research study ultimately provides insight into the nightmare protection effect.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

Carson Flockhart (right) is from Salmon Arm, B.C., and is a psychology major privileged to have a USRI grant. His experience has included coding dreams using multiple scales and exploring the effects of video games on dreams. His future scholarly plans are to attend a graduate school and further this fascinating research.

Alison Ditner (left) is an honours psychology student who assisted with this project.

FACULTY SUPERVISOR

Dr. Jayne Gackenbach, Department of Psychology faculty member, is an internationally recognized dream scholar whose research focus is on lucid dreaming and other altered states of consciousness. Her most recent research has focused on video game and media use and the development of consciousness.
Sarah Gahr has worked under the supervision of Dr. Jayne Gackenbach in the past on research related to dreams and dream content. She plans to carry on in her education by going to the University of Victoria and pursuing a master’s and PhD in counselling psychology.

Sarah Gahr  BA 2015

The Relationship Between Self-Construal, Media Use and Dreams: A Cross Cultural Study

Abstract. The study takes a look at the effect of media use on nighttime dreams across different cultures in China (Taiwan, Hong Kong and Wuhan), comparing the observations to counterparts in Canada.

We hypothesize that Chinese participants will score higher on interdependent self-construals than Canadians. Chinese participants will have more pervasive social media use as well as a different preference for gaming genres (among heavy gamers, massively multiplayer online game’s are preferred in China, while the action genre is preferred in Canada). Chase dreams are expected to be highly present across cultures, but western gamers will have a more moderated sense of the threat present than those who are heavy social media users. A fight response of male action gamers in dreams will be potentially noticeable only in the west, whereas in the east, a “tend-and-befriend” response may be adopted. Finally, social elements will be higher among heavy social media users across cultures but highest for the interdependent Chinese who are less westernized.

There are many advantages in studying the effects of media on dreams; for example, a cross-cultural examination of internet use could further our understanding of the appeal of being online, providing us with information about how media is viewed and used, as well as its impact on users. In this study, the impact is assessed by dreams, which have been shown to be information processors and emotional regulators of human activity. Another advantage in our study is that we ask for a recent dream as well as information about that dream and whether it was strange or bizarre to the dreamer in order to minimize the “Halo Effect.”

Participants will be asked to fill out online surveys through Qualtrics. The survey will include questions on demographics, media use, dream intensity, self-construal scales and a written account of a recent dream.

FACULTY SUPERVISOR

Dr. Jayne Gackenbach, Department of Psychology faculty member, is an internationally recognized dream scholar whose research focus is on lucid dreaming and other altered states of consciousness. Her most recent research has focused on video game and media use and the development of consciousness.
Ana Mariella Salinas Gonzales  B.Sc. 2014

Climate Change Coverage in the *Globe and Mail* and *Edmonton Journal*, a Comparative Content Analysis

**Abstract.** Research suggests that newspaper coverage of climate change impacts public opinion. This study examined climate change/global warming coverage in a local newspaper, the *Edmonton Journal*, and a national newspaper, the *Globe and Mail*. Approximately 120 news articles were selected from the Canadian Newsstand Complete database. Articles were screened to ensure substantive coverage of the issue, i.e., at least 50 per cent of the content was about the issue. The selection of articles was further stratified by date of publication (2008-2012) and news source, i.e., 60 articles from each news source. Using a coding scheme developed by Liu, Vedlitz and Alston, each article was analyzed by two different coders to ensure consistency and accuracy in the application of codes.

Several patterns were identified around the groups given a voice in news coverage of this issue. The *Globe and Mail* most frequently covered federal government commentary on the issue, while scientists/academics were most prominent in the *Edmonton Journal*. In addition, industry’s voice on the issue was more frequently observed in the *Globe and Mail*, compared to the *Edmonton Journal*. In terms of the types of information included in news coverage, scientific information was more often included in the *Edmonton Journal* articles, compared to the *Globe and Mail*. These differences in news coverage may result in differences in public opinion in Edmonton compared to the rest of Canada. In a follow-up study, the congruency between public opinion data and news coverage will be examined, focusing on Edmonton.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

Ana is a biological sciences major and sociology minor student conducting a USRI grant-funded content analysis project under the mentorship of Dr. Shelley Boulianne and a BIOL 498 project on garlic mustard with Dr. Melissa Hills in conjunction with the City of Edmonton. She intends to pursue a graduate degree in environmental sciences.

FACULTY SUPERVISOR

Ana was mentored on this project by Dr. Shelley Boulianne, Assistant Professor and social capital and civic and political engagement researcher in the Department of Sociology. She is part of a team of researchers and community organizations who are studying climate change dialogue in Alberta.
Evan Hollenbeck is pursuing a Bachelor of Science, computer science major. He is an aspiring software engineer who wants to pursue a career in building and maintaining complex software systems. This is his first research project, and he is extremely grateful to MacEwan University and Dr. Cam Macdonell for providing him with this wonderful opportunity.

**Evan Hollenbeck**  B.Sc. 2014

**Project Display: Making Object Recognition Easier in Mobile Applications**

**Abstract.** This study was initiated to explore some of the existing techniques used to analyze handwritten text and drawings using computer software, specifically on Android mobile devices. The primary importance of this research stems from the need to maintain the familiarity of pen and paper input on handwritten course work, where current software forms are insufficient for automated marking. Coming up with better ways to translate handwritten user input may allow institutions to either automatically mark, or offer real-time feedback to students on hand drawn problems.

The primary outcome of the study was the creation of a small set of special algorithms that can recognize hand-drawn shapes given the recognized set of basic shapes that Vision Objects provided to the program. Unfortunately, this means that additional work and development time would be required for each new shape the system is to recognize.

During the study, it was found that support existing in the Vision Objects software for defining new shapes was not sufficient for free body diagrams. The study continued with basic shape support, but this meant that any shapes more complex than a line, circle, curve or point had to be manually defined.

This led to an inability to explore certain questions that arose during the study, such as whether it would be possible to algorithmically create a set of base shapes and build the more complex diagrams from those sets. Because the study was carried out using closed source software, the researchers were unable to modify the software platform to add this behaviour manually in the limited time frame for the project.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant and Drs. Ken Fyfe and Jeffrey Davis for assistance and advice with the engineering and test diagrams.

**FACULTY SUPERVISOR**

Evan was mentored on this project by Dr. Cam Macdonell, faculty member in the Department of Computer Science. Cam’s current research interests are focused on computing science education in both teaching methods and the use of different technology in education, while his expertise is in software development, in particular open-source software.
Lauren Huybregts  
B.Sc. 2014

Modification of Camelina Wax for Novel Applications

Abstract. Waxes, more specifically wax esters, are found in a diverse array of products: lubricants and coatings, plastics and inks, and cosmetics and personal care products just to name a few. Currently, most of the waxes used by industry in commercial products are derived from petroleum, a non-renewable resource. Wax esters derived from renewable plant oils offer a more environmentally friendly alternative for many applications.

This research has built upon past student research, supervised by Dr. Samuel Mugo. The aim of the wax ester project is to generate useful products at every stage of synthesis using “green” chemical methods. This research has led to the development of a unique wax ester product from the seed-oil of camelina, a plant similar to canola with drought and cold-resistant properties.

The most recent stage of this research focused on modifying and enhancing the properties of the camelina wax product in order to expand its range of potential applications.

Investigations included:

1. Using cellulose and lignin extracted from waste plant biomass to make wax composites with unique characteristics.
2. Formulating wax-in-water emulsions suitable for use in cosmetic products and food coatings.
3. Making wax microspheres with potential for use as slow-release media for active agents like pharmaceuticals, flavours and fragrances.

These modified products were imaged with the use of a scanning electron microscope. Preliminary studies of wax-emulsions as food coatings and encapsulation of flavour agents in wax-beads were then performed.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

Lauren Huybregts is a physical sciences major with a special interest in chemistry. She has spent three summers working as a summer research assistant and hopes to pursue after-degree studies and a career in science and research.

Lauren was mentored on this project by Dr. Samuel Mugo, Assistant Professor and analytical and environmental chemistry researcher in the Department of Physical Sciences. After obtaining his PhD in analytical chemistry, he conducted postdoctoral research at Queen’s University in fabrication of microfluidic devices for protein analysis. His areas of research include lipid transformations, environmental analysis and analytical instrumentation.
Mapping the Effects of Bitumen Extraction in the Northern Alberta Oil Sands: 1984 to Today

Abstract. The oil sands deposits found in northern Alberta are a critical component of the Canadian economy. The process of surface mining results in various land changes including vegetation loss, increased mining, and accumulation of tailings ponds. The volume of data needed and monetary infeasibility results in few large-scale impact research projects, creating a gap in the scientific literature.

Remote sensing provides a cost-effective method to analyze the impact of oil sands mining. Comparing Landsat images starting with the first available image in 1984 and every five years until present day gave results for vegetation lost and the increase in area occupied by mining and tailings ponds. Regression analysis of increased mining area and time found that there was no statistical relationship between the two variables; based on the p value (0.0759), it could be considered a trend. The most statistically significant results were found in the regression analysis of tailings ponds which show a strong relationship with time (p=0.002128) and the data fits the line well (r²= 0.9256). The loss of vegetation was highly correlated with the increase in mining area (r²= 0.8718) while the overall vegetation health, determined by the Normalized Difference Vegetation Index (NDVI), showed no statistical relationship with time or mining. Overall mining activities are leading to vegetation loss and increased tailings, which will present difficulties with reclamation and environmental issues in the future. Remote sensing to complete collective monitoring of oil sands development is a cost-effective method to track land use changes and ecosystem health and should be used to ensure sustainable development.

FACULTY SUPERVISOR

Stephanie was mentored on this project by Dr. Nancy McKeown, Assistant Professor and Mars researcher in the Department of Physical Science. Nancy received a B.Sc. in geological and environmental sciences from Stanford University in 2005, specializing in structural geology. Her interests then turned to imaging spectroscopy and planetary geology, investigating the mineralogies at Mawrth Vallis, Mars for her PhD. Her areas of expertise are planetary geology, visible – near infrared – short-wave infrared (VNIR-SWIR) imaging spectroscopy, and GIS.
Julianne Jonas  BA 2013

Creating Change for “At Risk” Youth: The Impact of a Community-Based Employability Program

Abstract. This research is an exploration of community-based programming for at-risk youth. It is important to understand the impacts of programming in order to better assist youth who are actively seeking to change their lives. The Verto Project at YOUCAN Youth Services is a pre-employability and life skills training program for at-risk youth in Edmonton. The purpose of this study is to discuss the impacts of this program on the youth who participate. This investigation will not only provide insight into the lives of at-risk youth in Canadian society, but also help us to recognize the importance of organizations that assist youth in getting out of harm’s way.

Data collection techniques were purely qualitative, including an ethnographic description based on participant observation, as well as qualitative interviews with six youth participants of the Verto Project. Three staff members were also interviewed and a focus group was conducted with probation officers who work closely with the youth participants.

Major themes that emerged in the findings included improvements for youth in dealing with conflict, accepting differences, communication, and “planting the seed” of hope and success. These findings suggest that while change is often a difficult and a slow process, a relentless approach in youth work is effective in creating a positive change in the lives of at-risk youth.

As a sociology major, Julianne finds people absolutely fascinating. Learning about others’ struggles, pains, pleasures and triumphs, keeps her wanting to work towards improving the world around her. Julianne aims to pursue graduate studies. Her current interests in criminology surround risk, hope and conflict management.

Dr. Michael Gulayets is an Assistant Professor in the Department of Sociology. Michael teaches and conducts research in the area of criminology and criminal justice. In particular, he is interested in how the criminal justice system interacts with other social institutions, and how marginalized individuals are governed or regulated through criminal justice processes.
Michele LePage BSET 2013 with Rachel Ramkhelawan BSET 2013

The Role of Fluid Modifiers in the Enhanced Recovery of Oil in Reservoirs

Abstract. Developing new oil recovery techniques is important for the sustainability of the oil industry in Alberta. Extracting crude oil by drilling wells into the reservoirs and flooding with water is a popular method of oil extraction. This method, however, can have a recovery rate of approximately 33 per cent in some circumstances, leaving oil trapped in the ground. This research examines the use of fluid modifiers to increase the oil recovery rate by destabilizing the oil trapped in the reservoir. Using OpenFOAM, a fluid simulation software, the oil – water/modifier flow in a cavity was simulated. With over 150 simulations performed, a map of the regime where the trapped oil became unstable was found and correlations determined. The results allow for the development of new fluid modifiers for the use of light crude extraction.

FACULTY SUPERVISOR

Michele and Rachel were mentored on this project by Dr. Jeffrey Davis, faculty member in the Bachelor of Science in Engineering Transfer program. After receiving his PhD from the Swiss Federal Institute of Technology in 2004, specializing in thermal hydraulics in nuclear reactors, Jeffrey worked on the Phoenix Mars Mission. Currently, his research focuses on both the development of software to automatically assess students’ work as well as the numerical modelling of instabilities that develop between two fluids.
Stephen Lind B.Sc. 2013

Automatic Segmentation of Knee Structures in MRIs via Image Analysis Algorithms

Abstract. Magnetic Resonance Imaging offers physicians a great tool for analysis of the internal structures of the knee, but it is unable to produce 3-D images of a particular structure automatically. The current process to generate a 3-D image requires that a human operator individually trace the outline of the structure in question in a series of images. This image series can often range into the hundreds, significantly slowing diagnosis for physicians and providing a great impediment for research.

This project sought to apply various image recognition algorithms to the problem in order to automate as much of the tracing of the outline of a selected structure as possible, while maintaining high degree of accuracy. The cornerstone of the project was the Canny Edge detector. The Canny Edge detector provided a binary mask for the original image, aiding further processing. Watershed segmentation was then applied to the image, based on user-defined masking. User-defined masking was chosen because the position of structures within the image varies from individual to individual. After the masks are applied, final segmentation is performed and the outline is written to a new file, ready for 3-D image generation. The findings of this study showed that this algorithm produced good results on high-contrast images. On images defined as high contrast, these results captured more than 90 per cent of the correct pixels when compared to an anthropologically selected outline. On images defined as low contrast, results were generally poorer, but acceptable, as anthropologically selected outlines were often as inaccurate as the machine-generated outline.

Stephen Lind is pursuing his Bachelor of Science, computer science major. Stephen spent two years with Bioware LLC where his fascination with computer graphics and image analysis began, paving the way for his research on MRI images of the knee. He currently works as an application developer with AICT at the University of Alberta, where he supports researchers, faculty and support staff with software needs.

Stephen was mentored on this project by Dr. Calin Anton. Calin obtained his PhD from the University of Alberta in 2005, for his thesis titled Structure and Randomness of Satisfiability. His research interests reside in the general areas of empirical algorithms and artificial intelligence; more specifically he studies heuristic search and the satisfiability problem.
Scopolamine induces anxiolytic effects in zebrafish

Abstract. Zebrafish (Danio rerio) have become a popular model organism in behavioural neuroscience and pharmacology. This is due to their central nervous system having very similar neurotransmitter systems and major brain divisions as those found in the human brain. In the present study, we tested zebrafish with scopolamine, a muscarinic acetylcholine antagonist, which has been shown to have an anxiogenic (anxiety causing) effect in a rat model. However, in humans, scopolamine has an anxiolytic (anxiety reducing) effect as measured by the Hamilton anxiety scale. The present study aimed to assess the effect that scopolamine has on zebrafish. With the use of an “approach test” we quantified the time that zebrafish spent near an object they had never seen before. Control zebrafish have a tendency to stay very far from this object. However, alcohol (which is an anxiolytic) causes the zebrafish to approach the object much more readily. Scopolamine, at a dose of 800 µM, caused an anxiolytic effect similar to alcohol, consistent with the anxiety-reducing effect of this drug in humans. Importantly, scopolamine did not cause deficits in average velocity, immobility, and meandering behaviour that occurred with the anxiolytic dose of alcohol. Therefore, scopolamine produces an anxiolytic effect that is not accompanied by deficits in motor functioning. These results suggest that scopolamine could be used as an anxiolytic substance in humans, and zebrafish are a reliable organism to test anxiolytic substances.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

Faculty mentors on this project were Dr. Melike Schalomon, Associate Professor, and Dr. Trevor Hamilton, Assistant Professor. Both are neuroscience researchers in the Department of Psychology. Their research program at MacEwan University focuses on the modulation of fish behaviour caused by various pharmacological or environmental stimuli.
Abstract. Polynucleotide kinase/phosphatase (PNKP) is one of the major enzymes involved in DNA repair of both single and double strand breaks. It possesses 5'-kinase and 3'-phosphatase activities. In order to probe the possibility of use of C. elegans PNKP (also written as CePNKP) as a model system for the human PNKP, this project is assessing its kinase activity in comparison to the human PNKP enzyme. Specific goals of the research include examining the optimal pH, assessing its preference for the recessed end of DNA over the blunt end, and determining the interactions between DNA and CePNKP.

The two methods used in this research project will be Bradford Assay and Kinase Assay.

Bradford Assay is used to quantify the amount of protein present in the sample. Kinase Assay is used to detect the level of phosphorylation of the DNA substrate. If CePNKP turns out to be a good model system for the human PNKP, then it can be used to characterize inhibitors for the human enzyme. No one has yet to successfully crystallize the human enzyme bound to its inhibitor; therefore, this finding could be of great importance in enhancing the efficacy of cancer treatments.
Christopher Piat

Sex, Violence, and Stereotypes: How Extralegal Factors Influence Perceptions of Domestic Violence Incidents

Abstract. Hamby and Jackson\(^{19}\) varied the gender of the perpetrator and victim in a domestic violence vignette, and then examined people’s views and attitudes towards the incident. The results showed that people perceive male-on-female violence as more severe and more deserving of punishment than female-on-male violence due to perceptions of men being more capable of severe injury. Considering that female-on-male violence, and violence conducted in homosexual relationships, are almost as prevalent as male-on-female domestic violence,\(^{20}\) it is important to understand people’s perceptions of these non-prototypical domestic violence scenarios.

This study replicates the methodology used by Hamby and Jackson,\(^{21}\) but with several important alterations. First, to control for potential assumptions participants might make about size and strength differences between the victim and perpetrator, the couple was always described as similar in size, weight, build and athletic ability in our vignettes. The length of the couple’s relationship (dating vs. newlyweds) and the severity of the violence (mild vs. severe) were also manipulated to examine the effects the effects of these variables on people’s perceptions and attitudes. The participants’ beliefs in a just world, any ambivalent sexist attitudes and endorsement of traditional gender roles were then assessed to determine if those attitudes moderate the effects of the independent variables. Results indicate that perceptions of severity, responsibility and fear were indeed influenced by the variables under investigation.

Christopher’s faculty mentor on this project was Dr. Kristine Peace, Associate Professor and forensic psychology researcher in the Department of Psychology. Kristine devotes her time to teaching and research. In particular, she focuses her research on credibility assessment/deception/malingering, emotional processing and psychopathy, eyewitness memory, and jury decision-making.
Nathan Robock B.Sc. 2015

Fixed Point Factorization of the Exceptional Algebras

Abstract. Fixed point factorization is a method used to determine specific quantities within conformal field theory, including the charges of D-branes, membranes in which the ends of open strings are localized on the brane. Originally, these specific quantities were unable to be determined, but with the realization of fixed point factorization, Dr. Elaine Beltaos has found a way to calculate the quantities associated with the non-exceptional cases. The current project is the calculation of the exceptional cases, which behave differently than the non-exceptional cases.

The goal of the project is to calculate the formulae for the exceptional cases of the Wess-Zumino-Witten (WZW) models. To do this, Maple – a computer software program – was used to generate a large amount of data, specific to each of the models. The overall goal is to use this data to determine and prove an equation to relate a quantifiable value to a currently unknown value. So far, similarities in the patterns have been found between the known values and unknown values for both of the exceptional cases on which the research is focused.

This research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

Nathan Robock is pursuing his Bachelor of Science in mathematics and statistics. Since September 2012, he has been working, learning and understanding the mathematics behind fixed point factorization. In May 2013, he was awarded a USRI grant, and has since been working on finding the solutions for the E6 and E7 exceptional algebras. This experience has been invaluable as Nathan plans on attending graduate school in the future, with the goal of obtaining a PhD.

FACULTY SUPERVISOR

Nathan was mentored on this project by Dr. Elaine Beltaos, Assistant Professor and algebra researcher in the Department of Mathematics and Statistics. Her research interests are in representation theory of Lie algebras, especially as applied to mathematical physics.
Karyn Russell (pictured) is an honours psychology student in her final year of study at MacEwan University. The USRI funding has allowed Karyn to get some relevant research experience that ties into her future goal of becoming a physiotherapist with post-operative and brain-injured patients.

Karyn Russell BA 2014 with Priya Nath B.Sc. 2013

The Effects of Magnitude Shifts of Prism Adaptation on Spatial Attention in Healthy Individuals

Abstract. Patients with right brain damage have difficulty attending to things on their left side. Previous research has demonstrated that prism adaptation (PA) can help reduce these deficits. During PA, patients wear goggles that shift their vision to the right so that when they point to an object they end up pointing further to the right than they intended. As a result, the patient must learn to modify their movement leftwards to compensate for the rightward visual shift. Following this leftward adjustment in their movements, these patients are better able to attend to their left (“neglected”) side. Studies with healthy controls have found that leftward PA (i.e., in the opposite direction) can result in a subtle neglect of left space, similar to patients with right brain damage. This study used prisms with a larger shift (17°) than is normally used in PA studies (10°) and compared it with a smaller (8.5°) shift.

Results indicated that a larger magnitude of prism shift (17°) had a significant effect on a test of attention that required a motor response with adapted hand, whereas no effect of magnitude of shift was observed on purely perceptual measure of attention. These results suggest that PA has different effects on motor vs. perceptual measures of attention. Furthermore, these results imply that larger magnitudes of prism shift may be useful for treating motor deficits in patients with right brain damage.

The study was funded through a USRI grant to Karyn Russell and a Glenrose Rehabilitation Hospital Clinical Research Grant to Dr. Christopher Striemer.

FACULTY SUPERVISOR

Priya and Karyn were mentored on this project by Dr. Christopher Striemer, Assistant Professor and neuropsychology researcher in the Department of Psychology. His current research areas include how the brain controls vision, attention, and visuomotor control.
Kaitlyn Schimpf BA 2014

Representation of Youth Crime in the Popular Television Show Law & Order

Abstract. A quantitative and qualitative content analysis of the popular crime television show Law & Order was conducted in order to determine the manner in which youth crime was represented in a popular television series. Five episodes pertaining to youth crime were chosen by random and coded for the type of crime committed (violent or nonviolent), victimization of the young perpetrator, and final verdict of the court proceedings. Results of this study indicated that Law & Order over-emphasized the violent nature of fictional youth crimes, but rarely provided an account of the childhood experiences of the young offender as affecting possible explanation for their lifestyle choices. The results indicate a negative portrayal of youth crime that may have an effect on people’s perceptions of crime in real life. There is also an indication of the lack of research conducted studying fictional media sources even though the messages are as pervasive as non-fiction.

FACULTY SUPERVISOR

Dr. Diane Symbaluk is an Associate Professor whose research interests centre on driver distraction, student ratings of instruction and character traits of award-winning instructors. Diane also has a broad interest in particular areas of sociology including social inequality, mass media and collective behaviour/social movements. Her teaching efforts are currently concentrated on interpersonal attraction, intergroup relations, and qualitative and quantitative research methods.
Abstract. This study explored the role of cultural experience on counting skills in music. All music is composed around an underlying beat structure known as musical meter. Meter is based on the alternating pattern of strong and weak beats, and understanding of meter requires listeners to be able to recognize the regularity of beat groupings. Previous studies have demonstrated that cultural experience impacts listener’s ability to perceive rhythm and meter.

In this study, participants were presented 10 song clips from Western music and 10 song clips from South Asian music, both of which have 3-beat and 4-beat meter structures. Participants were asked to count along with the music and determine whether the song was based on 3-beat cycles or 4-beat cycles by matching the song to an image of a triangle or an image of a square respectively. Adults and children of both Western and South Asian cultural background were tested to track the role of listening experience and the developmental course of meter perception. It was hypothesized that participants with experience listening to South Asian music would perform equally well in both conditions, while participants with listening experience in Western music would only perform best in the Western music condition. Preliminary findings are in line with initial predictions; adults with South Asian music listening experience performed equally well at identifying meter in both musical traditions, whereas adults with only Western music experience showed an advantage in identifying meter in the Western music condition. In contrast, children with South Asian music experience performed better in the Western music condition. Equal proficiency for the adults with South Asian music experience suggests that adults have better bimusicality than children.

Future research may be interested in determining whether the skills necessary to categorize musical meter may impact complementary skills such as counting and patterning in general. Additionally, future work may seek to determine whether the cognitive flexibility developed with bimusicality may extend beyond music into the language domain, for instance.

Jennifer is a psychology major who has been involved in research projects on music perception cross culturally, music perception in children with cochlear implants, and multimodal influence on children’s cognitive abilities. She is also a graduate of MacEwan’s Early Learning and Child Care diploma program. Jennifer’s goal is to attend graduate school to study counselling psychology, with plans to work as a play therapist.

Jennifer Skolney BA 2014

The Role of Cultural Experiences on Understanding Musical Meter

Preliminary findings are in line with initial predictions; adults with South Asian music listening experience performed equally well at identifying meter in both musical traditions, whereas adults with only Western music experience showed an advantage in identifying meter in the Western music condition. In contrast, children with South Asian music experience performed better in the Western music condition. Equal proficiency for the adults with South Asian music experience suggests that adults have better bimusicality than children.

Future research may be interested in determining whether the skills necessary to categorize musical meter may impact complementary skills such as counting and patterning in general. Additionally, future work may seek to determine whether the cognitive flexibility developed with bimusicality may extend beyond music into the language domain, for instance.

Jennifer was mentored on this project by Dr. Tara Vongpaisal, Assistant Professor in the Department of Psychology. Tara’s research focuses on the perceptual and cognitive skills involved in children’s communication through speech and music. Her work to date has focused on the effects of deafness and hearing restoration (via cochlear implantation) on children’s ability to process music and voices. Tara’s laboratory is also investigating emotion recognition in normal developing children and in children with autism spectrum disorders.
Willow White BA 2014

“Come, the Longest Sword Carries Her”: Aphra Behn and Constructions of Masculinity

Abstract. This presentation, derived from Willow White’s undergraduate honours thesis, takes into consideration the work of English literature’s first professional female playwright, Aphra Behn, and her depictions of masculinity on the Restoration stage. It deals with a selection of Restoration comedies written between 1674 and 1681, specifically, the works of Behn, George Etherege and William Wycherley. While Behn’s portrayal of male characters has been passed over by contemporary critics in favour of considerations of Behn’s dynamic female characters, the presenter argues that Behn’s treatment of male characters signals her critique of those libertine values that undermine women.

Behn’s treatment of her male characters, including depictions of their sexuality and masculinity, affirms her concern with female agency. The male characters in Behn’s seminal work, *The Rover*, exhibit all of the conventional characteristics of libertinism: they detest marriage, they are willing to rape for their own pleasure, and they are constantly pursuing sex. Yet, this presentation will suggest that Behn uses male characters, just as she uses her strong and rebellious female characters, to challenge libertinism’s double standard by compromising masculine authority, ironizing male sexual aggression, mocking sexual obsession and revealing the hypocrisy of prevailing libertine values.

Dissemination of this research was made possible with support from a MacEwan University Undergraduate Student Research Initiative (USRI) grant.

Willow White is an English literature student, who completed her Bachelor of Arts honours degree in April 2014. Willow was awarded a USRI grant for the purpose of disseminating her honours thesis project at another, external conference in winter 2014. Willow hopes to attend a graduate program and work towards a master’s degree in English literature.

Willow was mentored on this project by Dr. Alex Feldman, Assistant Professor and British, European and American drama researcher in the Department of English. Alex’s research interests are concerned primarily with representation of history on stage, and after the recent publication of a book on metatheatre and historiography, he has embarked upon a second project concerned with the dramatization of historical trials in 20th-century theatre.
original painting on wood board by Tessa Dakin, Fine Art diploma 2014
SCHOOL OF BUSINESS

The faculty research agenda in the School of Business is focused on applied research in a variety of disciplines, and linking to both business practice and student learning. Faculty expertise include the areas of international business, strategy, marketing, organizational behaviour, human resources management, management education and development, accounting and finance, as well as supply chain management. A key focus on the school’s research agenda is the engagement of students in applied research. Applied research is a fundamental pillar in the curriculum so that students take on real problems a business is facing and address those issues by providing relevant research and recommendations to the organization. Students, mentored by faculty, commonly/regularly present papers at academic conferences and co-author publications.

The faculty supports a variety of activities to expose students to the global business community through applied projects, independent studies, conferences, study tours abroad and case competitions. Students build confidence and competency through these activities that prepare them for the workforce and for continuing their education, pursuing professional designations or graduate school.

The opportunities provided by our school’s two research institutes (the Asia Pacific Institute and the Institute for Innovation in Management Education) have contributed significantly to the research agenda and the opportunities for knowledge transfer with our community partners. The Research & Creativity Activity Showcase provides a forum for faculty and students to share their research activities with others in the academic community. The diversity and breadth of the activities at the undergraduate level is both inspiring and impressive.
Consumer Empowerment in the Financial Industry: A Focus on Youth Financial Literacy

Abstract. This study focuses on young consumers and the factors influencing healthy financial behaviour among them. The researchers advance the understanding on the issue by offering a consumer empowerment model for youth financial literacy that includes not only knowledge, but also the influence of young people’s worldview, parental behaviour and teaching, as well as internal motivation to learn and know more about financial topics, as predictors of healthy financial behaviour. By using a sample of high school and undergraduate students from Western Canada, our empirical results suggest that empowering young consumers is not only a question of knowledge, but an integration of several factors. Organizations trying to influence young consumers’ financial behaviour should broaden the understanding of empowerment to include personal worldview and motivation, as well as social surroundings.
Dr. Michael Roberts Commerce

Psychological Distance and the Zone of Proximal Development: International Knowledge Transfer by Returnee Managers

Abstract. This interdisciplinary study examines the process by which international returnee managers transfer knowledge. It integrates research from the foreign assignee literature with research in psychological distance, and the educational framework of the Zone of Proximal Development (ZPD). Forty-seven international returnees in large domestic Korean firms were interviewed. Utilizing a micro-foundational perspective on institutional logics, the resultant process model develops propositions about knowledge transfer across institutional boundaries. The researchers found that by engaging in scaffolding activities, returnees can, over time, successfully transfer knowledge to their workgroups by reducing the psychological distance of the knowledge they wish to introduce.

Prior to joining MacEwan University in 2012, Michael Roberts was a post-graduate research fellow at the Asia Pacific Foundation of Canada. He is the academic Chair of the Canada-Asia Energy Technology and Services Forum in collaboration with the Asia Pacific Foundation of Canada. Michael's research interests focus on international returnees and expatriate managers, as well as succession planning.

Michael received his PhD in international business from the Richard Ivey School of Business, his M.Ed. from the University of Toronto, and his BA from the University of Western Ontario.
Dr. Sunantha Teyarachakul | Commerce

Steady State Characteristics Under Processing-Time Learning and Forgetting

Abstract. This project studies the long-term characteristics of batch production times in an environment where learning and forgetting in production time occurs intermittently; that is, workers learn while producing units within a batch, forget during the interruption in productions, and relearn when returning to production of a product. To proceed with the analysis of long-term characteristics of batch production time, infinite-horizon, constant demand rate and fixed lot size are assumed. The specific classes of forgetting models under this examination include the power and exponential forgetting functions and the generalized model.

The project provides additional understanding of the long-term effects of learning and forgetting in batch production. Accurate understanding of such will be useful in estimating productivity, determining the minimal-cost lot sizes and appropriate time standards for workers, approximating labour requirements and designing effective wage incentives.

Sunantha Teyarachakul is an Assistant Professor in the Department of Decision Sciences and Supply Chain Management. Sunantha received her PhD from the Krannert School of Management, Purdue University and her MBA from Kenan-Flagler Business School at the University of North Carolina.
Nicholas Bakewell  B.Comm. 2014

Darden Restaurants Inc.: Potential International Expansion into South America

Abstract. Darden Restaurants Inc. is the largest company-owned restaurant chain in the world. Almost all of Darden’s North American operations are in the form of wholly owned subsidiaries. It has over 2,100 restaurants in North America alone, exposing the firm to a significant amount of concentration risk. Darden has potential for international expansion and has begun to enter a few regions internationally in the form of Franchise and Area Development Agreements; which is a divergence from the wholly owned approach on which they have built their business model. This presentation is based on an interview with Darden’s Senior Vice-President of business development. The secondary research presented explains the business case for Darden’s approach to international expansion.

Darden has a proposed partnership with International Meal Company, one of South America’s largest restaurant companies. Darden has assessed the markets of Brazil, Colombia, Panama and the Dominican Republic and feels that this partnership in these markets will allow them to exploit their restaurant brands outside of their transitional U.S./Canadian market. The market research presented gives insight into Darden’s decisions and potential strategy direction.

This research provides vital information to evaluate the merits of Darden’s current approach to internationalization, an expansion strategy that is quite different from their domestic operations. This research also examines the risks associated with a less controlled entry strategy and the impact of partnering with a firm with extensive market knowledge.

As an undergraduate student, Nicholas Bakewell says this project gave him insight into the rigour and time required to conduct business research. Although the research was tedious at times, Nicholas says it quickly became a very rewarding experience. He wrote the LSAT and plans to attend law school in the near future. He also hopes to complete a master’s of global affairs with the Munk School of Global Affairs at the University of Toronto to gain a greater understanding of the global market.

FACULTY SUPERVISOR

Michael Roberts (p. 35) is an Assistant Professor in the Department of International Business, Marketing and Strategy. His research focus is on global talent management and public-private partnerships. He is currently the Conference Chair for the Canada-Asia Energy Technology and Services Forum.
Corporate Reporting in the Information Revolution

Abstract. With advances in technology and increased access to information, the quality and reliability of information has become an issue within both households and boardrooms. The results of empirical research show that stock prices no longer provide an accurate portrayal of a company’s worth.\(^2\)\(^9\) For example, the disaster in Rana Plaza in Bangladesh that killed numerous factory workers has had far reaching effects, illustrating the increasing necessity for companies to report on aspects of their business that go beyond pure financial data.

Many variables can affect stock prices. Stock prices dropped after the disaster in Bangladesh, demonstrating the requirement for increased and broadened reporting. While companies are not required to report non-financial data to consumers, the public is beginning to demand more information as evinced by the tragedy in Bangladesh.

This presentation discusses the need to expand reporting to include non-financial factors that greatly affect a company’s value such as social and environmental drivers. Reporting on non-financial information provides businesses and investors with a comprehensive integrated picture of how sustainable a company’s business model really is for the long term.\(^3\)\(^1\) This research looks at several international initiatives gaining ground in corporate reporting. The Global Reporting Initiative (GRI) has created the G4 outline, and the International Integrated Reporting Council (IIRC) is creating a framework that consolidates existing reporting practices into one concise document. Organizations such as the IIRC will continue to advocate smart policy for stock exchanges and government. The U.K., Brazil, South Africa and China currently have listing requirements and have seen value-added gains from these reporting practices. Study results show stock exchanges in emerging markets are on track to overtake their developed-world counterparts in terms of quantitative sustainability disclosure performance by 2015.\(^3\)\(^1\) Furthermore, this research will demonstrate how public policy and stock exchange requirements are positioned to become major factors in creating holistic reporting practices.

FACULTY SUPERVISOR

Dr. Eloisa Perez is a Professor of Accounting and Finance in the School of Business. Eloisa has worked in multinational companies, and taught at the undergraduate and graduate (MBA) level in the areas of corporate finance, management accounting, valuation and venture capital in schools in Brazil, Spain and France. Her research expertise is in corporate governance and firm valuation. She is currently working on the impact of environmental, social and governance (ESG) strategies and their impact on firm value.
Abstract. This study aims to explain the role of liberal economic nationalism in China’s successful economic transformation and modernization. Nationalism or national sentiment can be defined as “the feeling of collective belonging or strong attachment to and pride in the nation which forms the foundation and basis of social integration.” The research suggests that it is this sense of pride, rather than industrialization that forms the basis of modern Chinese political economy.

While liberalization and privatization have been drivers of China’s economic catch-up, these market reforms have also destroyed China’s socialist cultural identity – the “iron rice bowl.” Mary Elizabeth Gallagher argues that the successful transformation is largely due to the “sequencing of FDI [foreign direct investment] liberalization before significant reform of the SOE [state-owned enterprise] sector and development of domestic private industry.”

This study uses meta-analysis or quantitative reviews of previous studies to examine the role of national identities and nationalist sentiment in forging strong support from the Chinese people for a series of difficult and politically sensitive reforms. China’s ideological transition has not been from socialism to liberalism, but rather from socialism to state-led development. Rapid economic growth and the creation of a small group of powerful and oligopolistic state-owned enterprises have enabled the Chinese state to utilize a set of market-friendly policies to achieve “goals of national prosperity and political power that are inherently nationalistic.” Thus, liberal economic nationalism, rather than neoliberalism, is the underlying ideology of China’s economic transformation.

Elisa B. King, PhD, has published in the area of politics of technology and innovation. Her interests are in international political economy, comparative politics, development, and national systems of innovation studies with regional focus on East Asia.

After taking POLS 261 (Asia-Pacific Political Systems), a class offered under the Asia-Pacific Management program of MacEwan University, Zechen has developed keen interest in acquiring deeper understanding of the role of politics in economic development. He is a conscientious student who establishes lofty goals for himself and works hard to achieve them. Early on in the course, he asked Dr. Elisa King to mentor him on this project that seeks to understand, broadly, the role of developmental state and, more specifically, ideology, in the development of oligopolistic small group of industries.
EDMfall by Lindsay Kirker, Fine Art diploma 2015
FACULTY OF FINE ARTS AND COMMUNICATIONS

Research activities at the Faculty of Fine Arts and Communications (FFAC) have, for the past few years, been characterized mostly by growth, inclusiveness and experimentation. Faculty members continue to showcase their work on a national and global scale. Whether it is a world premiere of an original composition with the Detroit Symphony Orchestra or a conference presentation in Shanghai, people both here and abroad are benefiting from our wellspring of talent and creative capital.

At MacEwan University, a renowned teaching institution, the research and creative pursuits of our faculty members greatly benefit students, primarily through research assistantships and mentorship opportunities. The Bachelor of Communication Studies (BCS) program, for example, has deployed students to do research and service learning work in Ecuador for a number of years now. The music program has guided students with their research on musicology and popular culture. One of the outcomes, a collaborative multimedia installation, is featured in this publication.

Furthermore, our students have also engaged the community in their creative undertakings. An example of this type of community-engaged research and creative work was The Flying Canoe Adventure last year. Faculty mentored fine art and music students as they collaborated to create a series of installations along the Mill Creek Ravine in Edmonton. Based on a combination of French-Canadian and First Nations legends, the installation evoked the historical past with light and sound.

Indeed, our Fine Arts and Communications faculty members continued to conduct research, creative and scholarly activities designed to engage students and make a tremendous difference in their learning process.
Abstract. The life of a composer is often portrayed as a mysterious world that consists of staring into the distance, waiting for divine inspiration and throwing a whole lot of tantrums. This couldn’t be further from the truth – except maybe for the tantrums. In reality, composition contains a very rigorous skill set where about 10 per cent is inspiration and 90 per cent is perspiration.

Dr. Allan Gilliland believes anyone with a basic background in music theory can be taught how to compose and much of his research interest lies in demystifying this process in both his own music and in his classes.

Throughout the year, Allan’s students write many pieces but a highlight is always the assignment for string quartet. Students are asked to compose in the style of Claude Debussy. At the completion of this project, he brings in a quartet from the Edmonton Symphony Orchestra to read their works. Having professional players perform your music is an essential element in the learning process. When a professional looks at you and says, “This is awkward,” you can be sure that the problem lies with your writing, rather than with the player’s abilities. Last year this project went one step further and students expanded their quartets for a 24-piece chamber orchestra, and all the student works were recorded at Muttart Hall for a forthcoming CD.

This presentation follows the path of one student’s work from their initial assignment to the final recording session, and shows how someone in their first year of composition can compose a successful work for orchestra.

Dr. Allan Gilliland  
Music

From Blank Page to Orchestral Recording: A Students Journey Through the Creative Process
Jazz Composition and Collective Improvisation: Challenges and Opportunities in the Recording of the Celsius Quartet CD

Abstract. The Celsius Quartet has been performing in its present incarnation since 2007, but its history began in 1998 under the leadership of Pierre-Paul Bugeaud with the inception of the Jazz Art Series. The Celsius Quartet is known for its eclectic approach to improvisation in which creative uses of colour, groove and texture are fused into a contemporary jazz sound. Repertoire includes jazz standards, new compositions and collective improvisations. In addition to bassist Pierre-Paul Bugeaud, the quartet consists of MacEwan University faculty members Jamie Philp (guitar), Gord Graber (drums) and Bill Richards (piano). The Celsius Quartet CD project is the first major recording the group has undertaken. While the recording process was successful, the path to this outcome was somewhat unexpected. The challenge facing the production of this project was to capture the multi-faceted Celsius Quartet sound and the imagination of the musicians in balance with the requirements of the compositions created by pianist-composer Bill Richards. Jazz composition for small groups is typically presented to the performers in lead-sheet format, which is essentially at a pre-compositional state in comparison to fully composed works. It is up to the musicians to fill in all of the details for the full realization of the work, resulting in a different interpretation of the work every time it is performed. Although improvisation plays a vital role in this process, subsequent performances tend towards consistency while the full range of improvisational ability and creativity of individual performers may become more restricted in the process.

This presentation explores the creative potential of the recording studio in the context of jazz composition and collective improvisation, and reveals solutions that the Celsius Quartet employed in the recording process that acknowledged the experience and imagination of the musicians which, in turn, enhanced the outcome of this project.

Bill Richards, PhD, is the head of piano and theory in MacEwan University’s Music program. He is a jazz pianist, composer, arranger, music theorist and also the architect of MacEwan’s Bachelor of Music in Jazz and Contemporary Popular Music. Bill’s research and creative interests include improvisation, composition, pitch-class set theory and transformational analysis.
Prior to joining MacEwan University in 2013, Tom Van Seters had full- and part-time teaching engagements at Brandon University and Humber College. He is also an active performer and composer working with local musicians in a variety of Edmonton’s great music venues.

Tom’s research explores the connections between drummer and non-drummer performance practices in jazz. He received his PhD in jazz performance from the University of Toronto and his M.Mus. from McGill University.

Dr. Tom Van Seters Music

Composing, Performing and Recording Drum Inspired Music

Abstract. This project involved the production of a full-length audio CD by Tom Van Seters, accompanied by bassist Jim Vivian and drummer Anthony Michelli. One of the central objectives was to demonstrate in practice some of the concepts discussed in Tom’s doctoral thesis entitled Eighty-eight Drums: The Piano as Percussion Instrument in Jazz.

Evidence of links between piano and drumming performance practices in western music date back to at least the mid-19th century.

The modern construction of the piano had yet to be fully standardized when percussive techniques were being applied to its keyboard. Since that time, pianists and drummers (especially those involved with the creation of “groove-based” music) have grown closer and closer, participating in what remains a richly symbiotic relationship. Tom’s thesis acknowledges drumming as the most important inspiration guiding the expression of rhythm and percussive attack by non-drummers, pianists in particular. Throughout the course of the recording project, various piano and drumming performance techniques were explored in part based on the premise that similarities in musical output flow naturally from congruencies in instrument architecture.

Percussive action unites pianists and drummers, as does a shared proclivity to create rhythmic layers through the independent functioning of multiple limbs. Audio excerpts from the completed CD will be used to illustrate how several drumming-like gestures were expressed at the piano. A brief discussion of the pedagogical implications of this research will follow.
Multi-Media Display: Music 263 Introduction to Music Technology

Abstract. A music student’s life is dominated by individual music practice, and because this practice happens in solitude and behind closed doors, little is known about it. Obviously, student practice is meant for personal musical transformation that occurs in day-to-day “practice.” But what is this transformation? I Transform: A Musician’s Reflection on Practice is an installation comprised of a collection of two-minute audio documentaries created by participating students who documented their practice regime and the impact it had upon them.

As Bachelor of Music students, this team project provided us the opportunity to explore the overlap of art and research by developing both our creative and production skills in an attempt to communicate what is so often a solitary task, musical practice. It allowed us to become more aware of the inner voice that affects the quality of our performance and practice; helps develop essential career oriented technological skills; and finally, engages us in textures and effects, not just sounds, necessary for the creation of atmosphere and emotion.

Michael B. MacDonald (above, third from right) is an Assistant Professor of Music at MacEwan University. He teaches courses in the history of popular music, jazz, Western Art Music, electro-acoustic music, music technology, and the music industry, and publishes widely on topics in popular music with special attention to critical youth studies, music education, cultural studies of aesthetics, and ethnomusicology.
Leanne Snellen is an artist who combines her other roles as registered nurse and farm wife into her work. “I love working with organic living forms in my art, and I am intrigued with how machines and technology can interact with living beings in symbiosis to create relationships that can be surprisingly unique.”

**Leanne Snellen** Fine Art diploma 2013

**Multimedia Display: Metal Milk Mother**

**Abstract.** “Metal Milk Mother” is a short artistic video that explores the relationship between the cows on the artist’s dairy farm, and the machines and technology used with them on a daily basis. One objective of this intermedia project was to create an artistic short film, using iMovie, Audacity, HD video, and iDVD. Individual students choose their own subject matter, and each of the videos done in classes are unique. Learning to use the video camera, sound recorder technology, and three new software programs seemed like a daunting task to the artist who notes, “Whenever I feel daunted, I search for something familiar to ground myself.” In this assignment she chose to focus on a subject that brings her comfort, her cows.

As she began her research, she became impressed with how docile and compliant dairy cows are with the machines used every day to milk them. The process of the milk moving through the tubes and basins to the tank is unseen by the cows. However, the suction-based milk machines inside the barn are very familiar and even bring these cows comfort when their udders are full and tight. The cows have learned to trust these machines and the humans who handle them as well, even when the machinery causes pain, as shown in the final scene when a calf is being pulled (assisted birth) with chains. The artist made this video to emphasize this strange symbiotic relationship between domesticated farm animals and machines made by humans.

**FACULTY SUPERVISOR**

**Leslie Sharpe** is Chair of Fine Art at MacEwan University. Leslie’s research focus is primarily human and animal relationships to space and place, manifested through a wide range of media (digital art, installation, writing, performance, relational art, and locative or site-based works). She has exhibited her work and held artist’s residencies internationally, including at PS1 Institute for Contemporary Art, the Banff Centre, Pompidou Centre in Paris, the Dallas Contemporary and Finland’s Kiasma Museum of Contemporary Art in Finland, among others.
FACULTY OF HEALTH AND COMMUNITY STUDIES

The Faculty of Health and Community Studies is committed to engaging in scholarly activity to inform and enrich our teaching, professional practice and knowledge of our disciplines. We deliver a breadth of programs in human services, public safety, nursing, complementary and allied health.

The following examples of scholarly work undertaken by faculty and students (now graduates) showcase a range of intellectual endeavours including the generation and application of knowledge with the intent to advance teaching/learning and professional practice.

The Faculty of Health and Community Studies places a strong emphasis on facilitating student learning through innovation and excellence in teaching, curricula and technology integration. Two of the initiatives showcase this commitment with a focus on the development of unique strategies to enhance student learning, advance critical thinking and foster integration of knowledge.

Interventions to advance health and wellness are the focal point for the other three scholarly endeavours showcased. The purpose being to improve professional practice. Maintaining strong connections with and being responsive to our communities of practice is a priority for our faculty.

The examples provided demonstrate our dedication toward advancing teaching and learning, clinical competencies and professional practice. Ultimately our goal is to enhance the health, safety and well-being of our communities.
Dr. Elizabeth McNulty

The Good Life and How to Attain It: Lessons From the Experiences of People with High-Functioning Autism Conditions

Abstract. People with high-functioning autism usually have average intelligence and many have talents in narrow areas of interest. However, symptoms in the socio-emotional realm frequently interfere with satisfactory quality of life. Despite attempts to facilitate positive outcomes, adults with Autism Spectrum Disorder (ASD) experience high rates of depression and poor quality of life. However, the voices of people with ASD are seldom heard in mainstream research. This gap needs to be addressed.

The aim of this study was to determine, using a strengths-based/positive psychology lens, how people with high-functioning ASD defined “the good life,” a concept popularized by Seligman and found to be instrumental in achieving positive life outcomes. Further, respondents were asked what they viewed as barriers or supports in achieving it, how they cope with the problems they encounter, and what they see as solutions to overcoming obstacles.

The primary method used in the research was in-depth interviews of 11 adults with high-functioning ASD. Interview transcriptions were analyzed to identify common themes and implications for practice. The participants generally described “the good life” as attaining the goals that neurotypical individuals take for granted. Having meaningful, adequately paid work was a primary theme. Others included living independently, having satisfactory relationships, being able to spend time on their hobbies and interests, and being accepted as differently abled rather than disabled. Participants reported that lack of awareness and knowledge about autism results in policy and service barriers, which in turn lead to unrealistic expectations for people with high-functioning ASD, and less than satisfactory outcomes.

This study points to the need for practice and policy in schools and workplaces, as well as housing and financial assistance programs, which take the needs of people with autism spectrum conditions into account.
Abstract. Oral communication of ideas is an essential skill needed for professional practice in any discipline. Interestingly, the written scholarly paper is the basic standard to measure higher order thinking in undergraduate education. In contrast, the Viva Voce was envisioned as an alternative evaluation strategy to assess student learning in a fourth-year senior nursing course as students prepared for their final practicum prior to graduation. Viva Voce translated from Italian means “with voice.” The Viva Voce takes the form of an oral presentation followed by an in-depth discussion on a one-to-one basis with the instructor on a self-selected topic of interest. Students are required to prepare for the presentation and discussion as they would do for writing a scholarly paper. Students are required to submit an abstract and reference list highlighting key articles related to their topic 72 hours in advance.

Each Viva Voce session is 60 minutes in length. Students are given 20 minutes to present, followed by a 30-minute discussion where the teacher uses Socratic questioning to evaluate the student’s understanding of their chosen topic. The final 10 minutes involves a discussion of how well the student did throughout the Viva Voce in meeting the criteria for the assignment and determining a final grade. This presentation discusses the advantages and disadvantages of the Viva Voce, along with student exemplars from their personal experience with this unique method of evaluation.

Margaret Milner, MN, RN, has been a faculty member in MacEwan’s Bachelor of Science in Nursing program for eight years. Her teaching and research interests are centred in the scholarship of teaching and learning professional issues within the discipline of nursing.

Liz White-MacDonald, MN, RN, joined MacEwan’s Bachelor of Science in Nursing program in 2010. In addition to her instructional role, she participates in advocacy for women’s and children’s health. Liz’s research interests relate to professional practice topics, as well as to enhancing student academic experiences to maximize engagement and learning.
Dr. Brian Parker

Nursing

Utilizing the iPad as a Mobile Teaching Resource in Psychiatric Nursing Education

Abstract. The digital revolution has significantly impacted psychiatric nursing education through the proliferation of learning tools such as tablets and other technology. Although the literature indicates that mobile teaching resources, like the iPad, have the potential to enhance learning, there is a dearth of literature regarding the use of iPads in psychiatric nursing education. Conversely, the use of tablet computers in nursing informatics is beginning to proliferate in the modern health-care environment. Neimeier noted that as the influx of technology grows, nurses will play a key role in utilizing these technologies to improve critical-thinking skills, enhance access to resources and improve patient care. Therefore, integration of mobile educational tools into psychiatric nursing curricula is paramount to ensure students keep pace with the competencies required of healthcare practitioners.

Through an inter-professional collaboration between the Psychiatric Nursing program, the Clinical Simulation Centre, the Centre for the Advancement of Faculty Excellence (CAFÉ) and the Department of Computer Science at MacEwan University, a research project was initiated with the goal of informing best practice regarding the use of iPads in psychiatric nursing education. The project began with use of iPads in selected program clinical laboratories, classrooms and clinical placements. This “proof of concept” phase was designed to inform the progression to a larger study and increased program integration of iPads in the 2013/2014 academic year.

This presentation engages participants in a discussion of the initial phase of the iPad integration project along with the preliminary findings to date.

This work was conducted in collaboration with John Coulson, Computer Science; Dustin Chan and Kirk Wright, Psychiatric Nursing program.
Linda Ching Massage Therapy diploma 2013

The Effects of Massage Therapy on Piriformis Syndrome

Abstract. Piriformis syndrome is a neuromuscular condition that primarily involves compression of the sciatic nerve by the piriformis muscle. The condition is caused by many different factors such as vigorous physical activity, associated trauma to the pelvic region, anatomical nerve or muscle abnormalities, postural imbalance, valgus knees, hyperlordosis and hypertrophy. Signs and symptoms of the condition include pain and/or paresthesia that are first felt in the lower back, hip and/or gluteal region. Later on, when the sciatic nerve is involved, the symptoms worsen and interventions include anti-inflammatory or anesthetic injections, non-steroidal anti-inflammatory medication (NSAID), muscle relaxants, narcotics, surgery and stretching exercises.

The objective of this study was to evaluate the effect of a 45-minute massage treatment on piriformis syndrome by measuring hip rotation range of motion and pain intensity levels each week for a consecutive seven weeks.

The treatment aims were designed primarily to decrease the pain and hypertonicity in the muscles of the affected right gluteal region, treat the compensatory muscles on the left side and to restore the length of the lateral rotators. Techniques included myofascial release (MFR), trigger point therapy, (TrP), contract-relax proprioceptive neuromuscular facilitation (PNF) stretches for the lateral rotators and hydrotherapy heat applications.

Range of motion for hip lateral and medial rotation of the affected side increased as demonstrated through goniometer measurements. The client also reported a decrease in pain intensity which was documented throughout the seven weeks pre- and post-treatment. The results suggest that massage therapy is an effective form of treatment for piriformis syndrome.

Linda Ching won the 2013 Massage Therapy Foundation student case report bronze award for the presented work.

Linda Ching has a Bachelor of Science degree in biological sciences with Chinese language and literature minor from the University of Alberta, and a massage therapy diploma from MacEwan University. She will continue to further expand her knowledge in the field of massage therapy and its effect on the human body. Linda also hopes to further pursue research on therapeutic massage as an effective catalyst for people in the process of rehabilitation.

Jeff Moggach is a practicing massage therapist and Chair of MacEwan University’s Massage Therapy program. Jeff has an MA and maintains currency in the massage therapy field through workshops and evaluating research. His blend of education and clinical experience grounds his interest in research including the therapeutic effects of massage therapy and massage therapy education.
Meredith Porter BScN 2013

Population Health Promotion and Primary Health-Care Interventions within Correctional Settings

**Abstract.** It is easy to walk into a jail and see the deficits or what little such a place has to offer. More challenging, perhaps, is the possibility of envisioning how health-care professionals might provide opportunities to inmates in order to improve the health of all Albertans. Within the context of NURS 479 and 489, the presented projects propose the development of health-care intervention strategies that seek to improve the health of this vulnerable population. The first project at Edmonton Remand Centre (ERC) implemented an RN-led wound assessment and treatment clinic utilizing the Bates Wound Assessment Tool grounded in the Transtheoretical Model and Motivational Interviewing. The second project, conducted within Fort Saskatchewan Correctional Centre (FSCC), began the development of a health curriculum utilizing concepts of population health promotion, the social determinants of health, and primary health care. This health curriculum would focus on the most common reasons for seeing prescribing health professionals within FSCC: lice and scabies, pain management, medication and health literacy, and non-insulin dependent diabetes mellitus. The early stages of development and implementation of both projects are presented.

Improving the health status of those incarcerated has positive impacts at multiple levels — reduces demands on acute health care services, improves the health of all persons incarcerated, and expands the scope and role of registered nurses within these unique care environments. As illness prevention and interdisciplinary collaborative teams are the wave of the future, these proposals to Alberta Health Services provides a framework for these provincial facilities to take forward a vision of the future for health-care services within corrections health-care in Alberta.

This presentation is made possible through the generous donation of time and mentorship by MacEwan University Nursing faculty Tanya Heuver and Nancy Laurensse, Alberta Health Services employees Diane Pyne and Melissa MacKenzie and all those working within ERC and FSCC.

**FACULTY SUPERVISOR**

Tanya Heuver’s scholarly interests lie in the areas of pediatric nursing, pediatric cardiac surgery and critical care, family-centred care and teaching. She has worked as a registered nurse (RN) in clinical and academic settings in Alberta, Ontario and Riyadh, Saudi Arabia. Her credentials include a master’s in nursing advanced practice in pediatrics and nurse practitioner.
Cross-Institutional Assessment of Information Literacy Skills: The Information Literacy Assessment & Advocacy Pilot (ILAAP)

Abstract. Information literacy, the ability to efficiently and effectively find, evaluate and use information, is a critical skill necessary to becoming a lifelong learner in an increasingly digital environment. Information literacy skills are recognized as desired and often required skills in the context of research, life and employment. In the post-secondary environment, the efforts to develop these skills are often carried by the academic library. As demand for information literacy skills grows, so does the requirement for accountability surrounding information literacy instruction as well as the desire to witness the effectiveness of this instruction. To that end, four Alberta post-secondary libraries have launched a pilot project to create a reliable, efficient and cost-effective process for the assessment of student learning as it relates to information literacy. The goal is to create and jointly implement a customized information literacy instruction assessment tool that responds to the unique needs of local institutions and provides an appropriate model for assessing information literacy skills among undergraduate students. A collective effort for the creation of assessment questions as well as the development of a shared tool provides these institutions with a reliable, robust process for providing evidence related to information literacy instruction. This session discusses the process of collaboration and initial results from the pilot phase of the project. As well, it provides an indication of the project’s next steps to enable further assessment of student learning among and between the growing lists of participating academic libraries.

The presenter would like to acknowledge ILAAP project partners Nancy Goebel (University of Alberta, Augusta Campus), Michelle Edwards-Thomson (Red Deer College) and Sara Sharun (Mount Royal University), as well as the financial support of the Alberta Rural Development Network.
FOOTNOTES

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