AGRI Conference Poster Presentations
Friday, April 8, 2016
3:40 – 5:15 pm, Max Bell Building

ALBERTA GAMBLING RESEARCH INSTITUTE

1	**Canadian Counselling Psychology Graduate Student Knowledge of Women Problem Gamblers**	Mackenzie Becker-Casurella *mackenzie.becker@uleth.ca* Department of Education University of Lethbridge	Problem gambling is associated with many costs. Numerous factors may determine whether and how one develops a gambling disorder, including gender. Men and women often have divergent gambling motivations, prefer different games, and experience gambling disorders differently in terms of severity and comorbidities. Despite this, the majority of research has focused on male problem gamblers, leaving the distinctive experience of women problem gamblers (WPGs) understudied or amalgamated into male's experiences, a phenomenon also observed with alcoholism. This has led to a deficiency of information regarding practitioner knowledge and best practices in relation to WPGs. This study uses an online survey - based on two previous surveys to ascertain the levels of knowledge that Canadian counselling psychology graduate students have regarding problem gambling, and specifically, WPGs. It is hoped that gaps in foundational knowledge will be addressed and areas deserving of further study will be highlighted. Future research can then focus on the provision of adequate and tailored training for those who may work with WPGs. In turn, the assessment, treatment, and prevention of problem gambling, specifically for WPGs, will be improved.
2	**Assessing the Role of Impulsivity in Smoking and Non-Smoking Problem Gamblers**	Célina A. Boothby *Celina.boothby@ucalgary.ca* Nicole K. Romanow Hyoun S. (Andrew) Kim Daniel S. McGrath David C. Hodgins Department of Psychology University of Calgary	Problem gambling has been found to be highly comorbid with other substance use disorders. In particular, nicotine dependence has been found to be second only to alcohol dependence as the most prevalent disorder that is comorbid with problem gambling (Petry et al., 2005). Often, people who engage in such addictive behaviours like gambling and smoking score high on measures of impulsivity (Nower & Blaszczynski, 2006; Billieux et al., 2007). However, there is a lack of research that examines the role of trait impulsivity among people who engage in both of these addictive behaviours concurrently. To address this gap in the literature, we examined the relationship between problem gamblers that smoke vs. non-smokers on dimensions of impulsivity as measured by the UPPS Impulsive Behavior Scale (Whiteside & Lynam, 2001). To this end, gamblers (N = 572) were recruited through an online crowdsourcing platform (Amazon's Mechanical Turk) and completed an online survey assessing our variables of interest (problem gambling severity, nicotine dependence, and impulsivity). Results compared scores on dimensions of impulsivity among problem gamblers who smoked compared to those who do not. Results from this research will help understand whether personality characteristics such as impulsivity are important in understanding the co-morbidity between problem gambling and smoking.

3	**Feedback related negativity signals prediction error in a value-learning task involving many stimuli**	Sucheta Chakravarty [1] * sucheta@ualberta.ca Isha Ober [2]* Christopher R. Madan [1,3] Yvonne Y. Chen [2] Jeremy B. Caplan [1,2] Esther Fujiwara [2,4] 1. Department of Psychology University of Alberta 2. Neuroscience and Mental Health Institute, University of Alberta 3. Department of Psychology Boston College 4. Department of Psychiatry University of Alberta * contributed equally to this work	The feedback related negativity (FRN) is a detection in the event-related potential (ERP) about 200-300 ms following onset of feedback. Across many studies, the FRN appears to index reward prediction error; this peak is more negative for unexpected than expected feedback. These studies typically ask participants to learn the reward values of just a few stimuli (i.e., 2-4). In many value learning-situations, individuals may need to learn the values of much larger sets of stimuli, in parallel. Here we ask whether the putative role of the FRN in indexing prediction error generalizes to such conditions. Participants learned, by trial and error, with feedback, the values of 48 randomly selected nouns. On each trial, the participant had to bet with (high valued items) or against (low valued items) the word to earn the high (10 points) rather than the low (1 point) reward, and were paid a small monetary bonus proportional to their cumulative score. After 16 blocks of 48 trials, the values of half the items were reversed. Here we analyzed the ERP following feedback during this reversal block. First, we asked whether a FRN-like signal, reflecting prediction error, was present. Confirming this, with a fronto-central topography, switched trials had a more negative voltage within the 240-300-ms window than non-switched trials ($p < 0.05$ at electrode FCz), consistent with FRN findings related to learning just a few values at a time. Second, results are inconclusive about whether the FRN differs in magnitude for different values. Our FRN did not interact with item-value, suggesting that, in our conditions, the FRN appears to index absolute, not signed, prediction-error. In sum, the FRN may index prediction error in more complex learning situations than previously thought, suggesting that it may be a relevant mean of studying how people master rich set of knowledge.
4	**Emotion dysregulation, gambling involvement, and gambling problems**	Sarah M. Farstad sfarstad@ucalgary.ca Kristin M. von Ranson Psychology Department University of Calgary	Negative urgency—impulsivity when experiencing negative emotions—is a facet of emotion dysregulation that is a well-established correlate of addictive behaviors. The aim of this study was to determine whether other facets of emotion dysregulation explained significant variance in gambling involvement and gambling problems after controlling for negative urgency. Participants included 202 community-based Canadian women (M = 34 yrs) with recurrent binge eating, recurrent gambling, or both. After completing a structured diagnostic interview by phone, eligible participants completed an online survey assessing emotion dysregulation, gambling involvement, and gambling problems. Data were analysed using hierarchical multiple regression. Negative urgency was not associated with gambling involvement or gambling problems. Emotion dysregulation explained significant variance in gambling involvement (R^2 = .075), but not gambling problems (R^2 = .045), after controlling for negative urgency. Notably, positive urgency (i.e., impulsivity when experiencing positive emotions) explained unique variance in gambling involvement (sr^2 = 4.7%) and gambling problems (sr^2 = 3.6%). Lack of awareness about one's emotions explained unique variance in gambling involvement only (sr^2 = 2.1%). Because positive urgency is a facet of emotion dysregulation that is consistently associated with gambling, at-risk women may benefit from prevention and treatment programs that target the regulation of positive emotions.

5	**The effects of stress on attention to gambling-related images**	Amanda Fernandez *fernanda@ucalgary.ca* Christopher R. Sears Keith S. Dobson Daniel McGrath Department of Psychology University of Calgary	Research on the attention patterns of problem gamblers has found that these individuals preferentially focus their attention on gambling-related stimuli to a greater extent than non-problem gamblers (Honsi et al., 2013). The bias in attention observed among problem gamblers suggest that attentional processes related to the orientation and sustained attention to gambling-related stimuli may be involved in the maintenance of problem gambling. In addition, stress has been found to play a role in the development and maintenance of gambling behavior and urges (Coman et al., 1997; Elman et al., 2010; Daughters et al., 2005). However, it is unknown whether the attentional bias observed in problem gamblers is exacerbated during the experience of high stress. The present study explored the effect of daily stress on attention to gambling-related stimuli. Level of daily stress was measured for individuals with varying degrees of gambling behaviour. Participants were shown pairs of images (two non-gambling images or one non-gambling image paired with a gambling image) for 8 seconds, as their eye fixations were tracked and recorded. The results of this study will have important implications for understanding precipitating factors that may enhance sustained attention and orientation towards gambling related stimuli.
6	**Examining the Earliest Warning Signs and Symptoms between Drinking, Gambling, and Eating Behaviours**	Benjamin Kim [1] *bekim@ucalgary.ca* Hyoun S. (Andrew) Kim [1] David C. Hodgins [1] T. Cameron Wild [2] 1. Department of Psychology University of Calgary 2. School of Public Health University of Alberta	There is growing interest in the commonalities among addictive behaviours, including behavioural addictions. Unfortunately, there has been a distinct lack of research investigating the earliest warning signs of addictive behaviours, specifically amongst people who have lived experiences with addictive disorders. The poster presentation will provide results from a study, which will aim to address this empirical gap by qualitatively examining the earliest warning signs (and their commonalities) of gambling, alcohol and eating disorders from the perspectives of the affected individual, family member/friend, and the general public (n = 2,630). To this end, data will be obtained from a larger study, which elicited and classified key signs and symptoms among a representative sample of Alberta residents (N = 3,503). Results will be presented that compares the earliest warning signs of gambling, alcohol and eating disorders from the three different perspectives, taking care to highlight the similarities and differences across the three addictive behaviours and three different perspectives. The results of the qualitative study may have significant implications in the field of addictions. Specifically, it may provide important insights into how people come to understand their addictions and more importantly, develop quicker intervention strategies before the full development of an addiction.
7	**The 'Candy Crush' sweet tooth: How 'near-misses' in Candy Crush bring mobile casual gaming closer to gambling**	Chanel J. Larche *cjlarche@uwaterloo.ca* Natalia Musielak Mike J. Dixon Department of Psychology University of Waterloo	Like many forms of slot machines, the exceedingly popular, mobile game "Candy Crush" features near-miss outcomes. In slots a near-miss involves getting 2 of the needed 3 high-paying symbols on the payline (i.e., just missing the big win). In Candy crush the game signals when you just miss getting to the next level by one or two moves. Our goal was to examine whether such near-misses cause increases in arousal, frustration and urge to continue play like they do for slot machine players. Sixty avid Candy Crush players were recruited to play the game for 30 minutes while having their Heart Rate, subjective frustration and urge to play recorded for three types of outcomes: wins (where they level up), losses (where they don't come close to levelling up), and near-misses (where they just miss levelling up). Near-misses increased heart rate significantly more than regular losses. Near-misses were also subjectively rated as the most frustrating of all outcomes. Most importantly, of any type of outcome, near-misses elicited the most substantial urge to continue play. These findings suggest that near-misses in casual games play a role in player commitment to the game, and may contribute to players playing longer than intended.

8	**Reward Schedule Variability Generates Addiction-like Behaviours in Rats**	Catherine S. Laskowski.[1] catherine.laskowski@uleth.ca Darren R. Christensen [2] K. G. Fisher [1] D. R. Euston [1] 1. Department of Neuroscience University of Lethbridge 2. Faculty of Health Science University of Lethbridge	It has long been recognized that random-ratio (RR) schedules, like those used in slot machines, are more engaging than fixed-ratio (FR) schedules. We hypothesized that long-term exposure to such schedules would produce behavioural addiction in rats. Rats worked for food under RR or FR schedules over prolonged periods and then were assayed for "addiction" via a battery of behavioural tests frequently used in animal drug studies. We predicted that, compared to rats on a FR schedule, rats on a RR schedule would respond at higher rates, continue responding when no reward was available, work longer when either response ratios progressively increased, or reward was paired with punishment. RR schedules had a major effect on the willingness of animals to work for food. Most strikingly, rats on the RR schedule were quicker to re-initiate responding after receiving a reward and were willing to work harder over longer periods of time for the same amount of reward than rats on the FR schedule. Overall, our results support our hypothesis that long-term exposure to RR schedules of reinforcement generates addiction-like behaviour in rats which, in turn, may serve as a useful animal model to explore both the neurobiology and pharmacology of gambling addiction.
9	**Detecting loss chasing in online slot machine play and tables games**	Tilman Lesch tilman.lesch@psych.ubc.ca Luke Clark Centre for Gambling Research at UBC Department of Psychology University of British Columbia	Loss chasing refers to the tendency to increase bets and gamble for longer after losing money, in an attempt to win back one's debts. It is widely viewed as a cardinal sign of at risk or problematic gambling behaviour. Our research presented here provides first insights into loss chasing behaviour in real-life online gambling records. After developing different ways of operationalizing loss chasing in trial-by-trial data from one month of user records from an online gambling platform, we fitted a linear regression and an exponential model to the bet sizes over the course of a gambling session and across multiple sessions. We compare model fits across different types of gambling games, focusing on the comparison of online slot machines versus table games like Blackjack.
10	**Subtyping community-recruited problem gamblers using the pathways model**	Miea Moon [1] James J. Lister [1, 2] jlister@wayne.edu Aleks Milosevic [3] David M. Ledgerwood [1] 1. Department of Psychiatry and Behavioral Neurosciences Wayne State University School of Medicine 2. School of Social Work Wayne State University 3. Centre for Interpersonal Relationships	This study examined whether distinct subgroups could be identified among a sample of community-recruited problem gamblers (N = 150, 50% female) based on Blaszczynski & Nower's (2002) pathways model. Levels of coping problems, childhood trauma, boredom proneness, risk-taking, impulsivity, ADHD, and antisocial behavior variables were examined using hierarchical cluster analysis to identify subgroups. Subgroup differences in gambling-related, psychiatric, and demographic variables were also assessed. Consistent with the pathways model, our analyses identified three gambler groups: 1) behaviorally conditioned (BC), 2) emotionally vulnerable (EV), and 3) antisocial-impulsivist (AI). BC gamblers (n = 47) reported the lowest levels of lifetime depression, anxiety, and gambling severity. EV gamblers (n = 53) reported the highest levels of childhood trauma, motivation to gamble to cope with negative emotions, gambling-related suicidal ideation and family history of gambling problems. AI gamblers (n = 50) reported the highest levels of antisocial behavior and ADHD symptoms, as well as higher rates of impulsivity and risk-taking than EV gamblers. The findings provide evidence for the validity of the pathways model as a framework for conceptualizing problem gambling subtypes, and underscore the importance of tailoring treatment approaches to meet respective clinical needs.

11	**Estimating the Prevalence of Post-Secondary Problem gambling through Random Effects Modelling: A Meta-Analysis**	Dustin Marcinkevics *dmarcink@ualberta.ca* William Hanson Department of Educational Psychology University of Alberta	Little is known about composite gambling rates among Canadian university students, a group highly susceptible to developing health-compromising gambling problems. Increased susceptibility and extra high risk taking, coupled with the challenges of emerging adulthood, underscores the need to capture the overall prevalence of disordered gambling among male and female post-secondary students. This analysis, involving 16 studies published between 1994 and 2015 across 15 journals, uses complex random effects modeling to calculate national prevalence rates of problem gambling. Overall, our calculations involved 15 895 total participants. Broad inclusion criteria included: (1) use of general population Canadian university students, and (2) measuring gambling severity through the Problem Gambling Severity Index (PGSI) or the South Oaks Gambling Screen. Altogether, this analysis demonstrates that between 3.42% and 4.27% (PGSI) and 2.06% to 5.38% (SOGS) (95% CI) of Canadian university students demonstrate problematic, if not disordered, gambling behaviour when controlled for gender. This provides information on the extent of student gambling, acting as a foundational step towards Canadian student risk and protective factors. Implications for future research and possible intervention are discussed. This study is noteworthy because, for the first time, it systematically examines gambling rates across multiple studies and calculates composite rates, using Canadian student samples.
12	**Recent Experience with Relative Losses has Lasting Effects on Risk Preference**	Neil McMillan [1] *nmcmilla@ualberta.ca* Christopher R. Madan [1, 2] Jason Long [1] Elliot A. Ludvig [3] Marcia L. Spetch [1] 1. Department of Psychology University of Alberta 2. Department of Psychology Boston College 3. Department of Psychology University of Warwick	Experiencing risky 'wins' tends to lead humans to prefer risky over stable outcomes. We studied how previous exposure to weighted odds for different risky outcomes led to the development of preference for risky over safe choices later in the same experimental session. We asked participants to select between a series of choices, most pertinently between an alternative that paid a randomized number of points (risky choice) vs. alternatives that paid off a set number of points of equivalent value (safe choice). Importantly, participants experienced outcomes matched at high and low values of points for different options, and early training featured different probabilities of outcomes on the risky options. We found that participants were largely insensitive to fluctuations in winning probability for high value options; however, for options that included a possibility of earning zero points, participants' risk preferences were sensitive to fluctuations in win probability and showed lasting effects of the most recent probability. Bouts of losing had more effect on risk preference than bouts of winning. This research has implications for understanding how humans process and remember risk, and how problem gambling behaviours may arise.

13	**Stress Mediates the Relationship Between Relative Deprivation and Problem Gambling**	Tyler J. S. Meadows [1] tylerjsmeadows@gmail.com Sandeep Mishra [2] 1. Department of Psychology University of Regina 2. Faculty of Business Administration University of Regina	Personal relative deprivation describes subjective feelings of resentment, anger, and deprivation associated with competitive disadvantage. Relative deprivation has been associated with problem gambling across several studies. However, little is known about the mechanisms that underlie this relationship. Because relative deprivation necessarily involves social comparisons and social comparisons are stressful, stress should be an important factor in this model. We examined whether relative deprivation operates through stress to influence problem gambling. A mediation model was run on a sample of n = 695 participants from the general population. Results replicated previous findings linking relative deprivation to increased problem gambling tendencies. The deprivation/problem gambling relationship was fully mediated by self-reported stress. Taken together, our results suggest that relative deprivation operates through increased stress to facilitate problem gambling.
14	**Use of Online Crowdsourcing Platforms for Gambling Research**	Sandeep Mishra [1] mishrs@gmail.com R. Nicholas Carleton [2] 1. Faculty of Business Administration University of Regina 2. Department of Psychology University of Regina	Crowdsourcing platforms like Amazon's Mechnical Turk and Crowdflower have been touted by behavioral scientists across numerous disciplines to be a cost-effective way to collect large amounts of data. Across three studies, we examined whether participants in such labor markets are suitable for gambling research. In Study 1 (n = 493), conducted on Crowdflower, problem gamblers (as measured by the benchmark Problem Gambling Severity Index) comprised 24.5% of participants. In Study 2 (n = 1386), also conducted on Crowdflower, problem gamblers comprised 21.9% of participants. In Study 3 (n = 815), conducted on Mechanical Turk, problem gamblers comprised 13.9% of participants. In Studies 2 and 3, we demonstrated strong convergent associations across various measures of problem gambling tendencies and general gambling involvement. Furthermore, we demonstrated that gambling was associated with personality traits (impulsivity, sensation-seeking, self-control), risk attitudes, affect, and behavioral risk-taking consistent with previous research. Taken together, our results suggest that online crowdsourcing platforms are an excellent source of participants for gambling research.
15	**Relations Between the HEXACO Model of Personality and Compulsive Buying and Gambling Involvement**	Tessa Neilson tessa.neilson@hotmail.com Mandana Rad Daniel S. McGrath Kibeom Lee Department of Psychology University of Calgary	The present study examined the relationship between Compulsive Buying Disorder, gambling behaviours, and HEXACO personality factors in a sample of Canadian undergraduate students (N = 326). It was hypothesized that Honesty-Humility and Conscientiousness would be negatively correlated with Compulsive Buying and past 12-month gambling involvement, and that a positive relationship would exist between gambling and Compulsive Buying Disorder. The results indicated that contrary to predictions, Compulsive Buying and gambling involvement were uncorrelated. Compulsive Buying was found to be negatively correlated with both Honesty-Humility and Conscientiousness; however, gambling was negatively correlated with Honesty-Humility and Emotionality and not significantly correlated with Conscientiousness. Regression results suggest that gender, Honesty-Humility, Emotionality and Conscientiousness are significant predictors of Compulsive Buying. Honesty-Humility was the only personality predictor of gambling. The findings of the present study contribute to the literature on behavioural disorders by providing an increased understanding of the personality factors that can impact an individual's susceptibility to Compulsive Buying and gambling behaviour. Implications, limitations, and areas for future research will be discussed.

16	**Domain-Specific Gambling and Perceived Embodied Capital**	Dallas Novakowski [1] dallasnovakowski@gmail.com Sandeep Mishra [2] 1. Department of Psychology University of Regina 2. Faculty of Business Administration University of Regina	Increasing evidence suggests that many individuals take risks in only certain domains. The relative state model posits that individuals take risks when they are disadvantaged (through a need-based pathway) or when their abilities change the costs or benefits of a risk-taking behaviour (through an ability-based pathway). In a study among undergraduates, we examined whether gambling (a form of risk-taking) could be in part accounted for by the relative state model. We did not find support for the need-based pathway with regards to gambling behavior: Competitive disadvantage as measured through self-reported embodied capital (e.g., intelligence, attractiveness, strength, coordination) was not associated with greater gambling, including non-skilled forms of gambling (e.g., use of slot machines, drawings, sweepstakes, contests). However, we did find evidence supporting the ability-based pathway to gambling: Self-reported embodied capital was positively and significantly associated with a greater frequency of "skilled" gambling (e.g., poker, blackjack, betting money on one's own sports abilities). Taken together, our results suggest that individuals participate in skilled forms of gambling in part due to their perceived ability to succeed. The results also provide evidence suggesting that gambling is a form of domain-specific risk-taking.
17	**Do near-miss events function as reinforcers: A causal analysis of near miss events on pigeon behaviour**	Jeffrey M. Pisklak pisklak@ualberta.ca Joshua H. Yong Marcia L. Spetch Department of Psychology University of Alberta	Many casino games are known to produce near-miss events. These are events that give the player the impression they have "almost" won. It has long been claimed that these types of events behaviourally reinforce the player's betting response. Here we provided a novel test, within a pigeon model, of whether near-miss events are more reinforcing than other combinations of cues. Pigeons (n=6) were given 15 days exposure to a random-ratio 5 schedule of reinforcement. One of five equiprobable "reel" patterns (red circles appearing from left to right) consisting of a "win," a "near-miss," a "far-miss," a "flanked-miss," or a "single-miss" was administered for each response to a white pecking circle. Subsequently, 5 days of extinction (wins removed) were administered with either the near-miss frequency or the far-miss frequency increased from 20% to 40%. The procedure was run twice on each pigeon, exposing them to both types of extinction treatment in a counterbalanced fashion. Cumulative responding during extinction served as the dependent measure. If near-misses are functioning as reinforcers beyond the other types of misses that occur, then cumulative responding in extinction should be greatest in the 40% near-miss treatment. This study was pre-registered on the Open Science Framework: osf.io/8dh7x.

| 18 | **Assessing the Relationship Between Adverse Childhood Experiences and Gambling Severity** | Julia C. Poole
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Hyoun S. (Andrew), Kim
Keith S. Dobson
David C. Hodgins

Department of Psychology
University of Calgary | Approximately 60% of Canadian adults report exposure to at least one type of adverse childhood experience (ACE), such as childhood abuse, neglect, and household dysfunction. The extant literature suggests ACEs are associated with an array of mental and physical health problems in adulthood, including disordered gambling. Unfortunately, the existing research on the relationship between ACEs and disordered gambling suffers from considerable methodological limitations (e.g., lack of validated measures, sample size, generalizability) and, more importantly, has not examined the mechanisms by which ACEs may exert their influence on adult gambling behaviours. The aim of the current research is to address this empirical gap. To this end, we will recruit approximately 400-500 gamblers through an online crowdsourcing platform (Amazon's Mechanical Turk), to examine two major research questions. First, we will examine the degree to which ACEs and adult gambling severity are associated in a large, community sample using a well-validated measure of ACEs. Second, we will examine the potential mediators and moderators of the relationship between ACEs and problem gambling severity, such as emotion regulation, impulsivity, mood, resilience, and social support. Results from this research will have important implications in the treatment and prevention of disordered gambling. |
| 19 | **The Effect of Labels on Public Stigma towards Gambling Disorder: Replication in a Community Sample** | Leanne Quigley*
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Jennifer Prentice*
David C. Hodgins
Keith S. Dobson

Department of Psychology
University of Calgary

*Co-investigators and co-presenters | Individuals with gambling problems have reported that stigma is a significant barrier to seeking treatment (Suurvali, Cordingley, Hodgins, & Cunningham, 2009). Past research suggests that the labels used for mental disorders may influence how these disorders are perceived and evaluated by people (Szeto, Luong, & Dobson, 2013). A pilot study with a sample of undergraduate students was conducted to investigate whether different labels for gambling disorder influence stigmatizing attitudes. The results demonstrated that reported levels of desired social distance, discrimination, perceived devaluation and discrimination, and stigmatizing attitudes were similar across the different label conditions (Prentice, Quigley, & Dobson, 2015). In addition, regardless of the label used, gambling problems were highly stigmatized relative to asthma, depression, and OCD. The present study is a replication of the pilot study in a community sample of participants. Four different gambling labels (i.e., gambling disorder, gambling addiction, pathological gambling, and problem gambling) are compared on various dimensions of stigma, including causal attributions, stereotypes, desired social distance, discrimination, perceived stigma, and prognosis and treatment beliefs. The gambling labels are also compared to five comparison conditions (i.e., alcohol use disorder, asthma, depression, obsessive-compulsive disorder, and compulsive buying disorder) to evaluate the extent to which gambling problems are stigmatized relative to other health, mental health, and addiction-related conditions. The implications of the results for understanding of and future research related to stigma of gambling disorder will be discussed. |

20	**Identifying Self-Generated Motives for Gambling Abstinence**	Christina L. Rash *jlrash@ucalgary* Daniel S. McGrath Department of Psychology University of Calgary	Previous studies have proposed a number of motivational models for problem gambling. For instance, models comprised of enhancement, escape, and social motives have been found to reliably predict gambling outcomes. Several of these models have been successfully adapted from the alcohol literature (e.g., Stewart & Zack, 2008); however, not all drinking and gambling motives are analogous (Dechant, 2014). Other studies on drinking motives have also identified protective factors; that is, motives related to abstaining from alcohol. Much like motives for gambling, there could be possible theoretical overlap, but it cannot be assumed that individuals' motivations for *not* gambling will mirror those for not drinking. The aim of the present study was to identify self-generated motives for *not* gambling. Participants consisted of undergraduate psychology students at the University of Calgary who reported not engaging in any gambling behaviours in the past 12 months. Participants provided their top three reasons for not gambling, and primary responses for gambling abstinence were coded and categorized based on conceptual similarity. These motives categories will be subsequently compared on a number of demographic and psychosocial characteristics. Identifying motives provided by non-gamblers may aid in constructing a gambling-specific measure to further explore protective factors against problem gambling.
21	**Implicit Cognition and Gambling: The Development of Three Implicit Measures of Problem Gambling**	Gillian Russell *g.russell@uleth.ca* Robert Williams Department of Psychology University of Lethbridge	Individuals, particularly addicts, often engage in behaviours that they know are detrimental to their wellbeing. The issue is not that addicts do not understand that these behaviours are detrimental to their wellbeing, but rather they have difficulty in overcoming automatic impulses. Over the past 20 years theories and measures of implicit cognitive processes have increasingly been applied to studies of addiction; however, few studies have examined this relationship as it pertains to participation in gambling. This particular study evaluates three new techniques for measuring implicit cognitive processes related to gambling participation. The first two measures tap into memory associations using indirect methods to assess word and behaviour associations for ambiguous cues; methods that have, as of yet, not been used in the study of problem gambling. Because, these methods do not require special equipment they may be more easily integrated into clinical practice and population research than other tests of memory association (i.e. the Implicit Association Test). Additionally a new method for assessing attentional bias, using theory based on findings from studies of eye-tracking and focused attention, is being evaluated. Analyses are ongoing and preliminary results will be presented.
22	**Understanding the physiological and psychological effects of scratch card play**	Madison Stange *mstange@uwaterloo.ca* Mikyla Grau Sandra Osazuwa Candice Graydon Mike J. Dixon Department of Psychology University of Waterloo	We have shown that near-misses in scratch card games can have profound effects on players' physiological and subjective experiences. Here we replicate and extend our knowledge about these effects. In two studies, undergraduate students (63 in study 1, 68 in study 2) played custom-made scratch cards and encountered losing, winning, and near-miss outcomes (uncovering two of the required three top-prize symbols) while having their skin conductance levels (SCL) and heart-rate (HR) recorded. Following game play in study 1 and after each outcome in study 2, participants were asked about their subjective experience of each outcome type. In both studies, near-misses were associated with greater physiological arousal than regular losses. Additionally, small wins were associated with high subjective arousal, low frustration, positive affect, and long (celebratory) pauses following game play. Near-miss outcomes were associated with high subjective arousal, high frustration, negative affect, but no celebratory pauses following game play. When collected immediately following each outcome (study 2), urge to gamble ratings were greater following near-misses than regular losses. Overall we replicated that small wins are reinforcing. Crucially, we also showed that near-misses are not only preferentially arousing and frustrating, but despite being losses, are nonetheless highly motivating.

23	**Similar Motives? The Forces behind Drinking and Gambling Behaviours**	Jasmine Thomas *jthomas@LGAmanitoba.ca* Liquor and Gaming Authority of Manitoba & Department of Sociology University of Alberta (PhD Candidate)	This exploratory study examines whether the motives for drinking and gambling behaviour follow a similar conceptual structure in a representative sample of adult Manitobans who reported that they both gamble and drink alcohol. Given the high co-morbidity of pathological gambling behaviours and alcohol use disorders, it is reasonable to question if similar intentions are implicated in gambling and alcohol-use behaviours more broadly, or if differing reasons play a role. Scholars examining drinking motives have found that the motivations for gambling follow similar conceptual patterns. Instruments to measure the motives for gambling were developed and validated based on questions examining drinking behaviours and motives. Previous research illustrates the importance of three specific motivational concepts (coping, enhancement and social) that influence drinking and gambling behaviours (Stewart & Zach, 2008; Dechant, 2014). This study utilizes these instruments (DMQ-R, GMQ and GMQ-F) to test if similar theoretical understandings of motives for gambling and alcohol use apply to this specific sample of adults.
24	**Individual differences in neural traces of decision making and their relationship to gambling tendencies**	Nathan J. Wispinski [1,2] *nwispinski@ualberta.ca* Jennifer K. Bertrand [2] Anthony Singhal [1] Craig S. Chapman [2] 1. Department of Psychology University of Alberta 2. Faculty of Physical Education and Recreation University of Alberta	Making a choice between two or more options, for example, takes time. Theories of decision making suggest that during this time, whether it is milliseconds or minutes, evidence for or against each available option is accumulated in the brain until a final choice is made. However, sometimes disadvantageous decisions are made, like those associated with problem gambling behaviours. Differences in how individuals accumulate evidence in order to make decisions may underlie significant aspects of problem gambling behaviours and other forms of maladaptive decision making. We propose an experiment that aims to measure evidence accumulation during decision making using brain recordings measured from electrodes on the scalp while participants make simple two-choice visual perceptual decisions. We suspect that an individual's propensity for problem gambling be related to observable rates and changes in how that individual accumulates evidence during decision making. By measuring neural traces of how individuals dynamically compute decisions we aim to uncover fundamental processes behind maladaptive decision making seen in individuals affected by problem gambling.
25	**Gambling for Prestige: Intergroup Competition in Alberta's Prehistory**	Gabriel M. Yanicki *yanicki@ualberta.ca* Department of Anthropology, University of Alberta	Central to the many historic and ethnographic accounts of traditional gambling games played by men and women in prehistoric North America is a relationship between gambling stakes and social distance. What were people's motivations to gamble in the high-risk, high-reward settings that characterized intertribal gaming competitions? Interpersonal competition within the context of play—a system that can be described as *prestige gaming*—allowed risk-taking individuals to gain wealth, and more importantly, the status associated with its redistribution. While gambling games were prolific, directing this activity towards out-group members mitigated against the risk of creating discord within close-knit groups that depended on each other for survival. Old Man's Playing Ground, the namesake of southern Alberta's Oldman River, is offered here as an example of how one gaming place served as a nexus for intertribal competition and trade on the natural frontier between traditionally rival groups of the Interior Plateau and Northwest Plains.

| 26 | **Does near-miss feedback reinforce betting responses in humans?** | Joshua J. H. Yong
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Jeffrey M. Pisklak
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University of Alberta | A near miss occurs when feedback in games of chance approximate the feedback for wins. For instance, seeing cherry-cherry-lemon on a slot machine would be a near miss. Our study assessed whether near misses better reinforce betting responses in extinction relative to other types of loss feedback. Here, introductory psychology students bet on a computer-simulated pseudo-slot machine for a chance to earn points exchangeable for money. Participants first bet by clicking on a white response key. Then, red feedback circles above the response key appeared from left to right to signal the outcome of the bet. Wins awarded participants 50 points. Otherwise, participants lost their bet, which was signaled by an equally probable near miss, far miss, flanked miss, or single miss cue. After a fixed number of bets, the program stopped awarding points (i.e., participants entered the extinction phase) and the wins were replaced by an increase in one type of loss feedback. Participants were instructed at the outset of the experiment that they could stop playing at their discretion to maximize earnings. If near misses do in fact reinforce the betting response, then participants who experienced more near misses during extinction should place the most bets following extinction. |