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We are thrilled to welcome you all to Mount Allison University for the 43rd annual Science Atlantic Psychology conference. This conference highlights the research being done by undergraduate student across the Atlantic Provinces, and it is always an engaging and stimulating experience. We are excited to host everyone in our beautiful town of Sackville, NB on the Tantramar Marshes.

For this year’s Science Atlantic Psychology Conference, we have over 90 student presenters and a dozen faculty members from 12 institutions. The conference will start with a social event at our campus pub, The Pond, where our student volunteers have organized some fun activities. We will also be serving pizza and drinks! On Tuesday morning, Mount Allison’s President and fellow psychology researcher, Dr Jean-Paul Boudreau, will open the academic portion of the conference. Then we will have a presentation from our keynote speaker, clinical psychologist Dr. Melissa Burgess-Moser. The rest of the day will be filled with student presentations on a wide variety of topics. Finally we will end with a banquet and awards ceremony in the evening.

Thank you to our sponsors for their support: Mount Allison University, Pearson Publishers, Nova Scotia Community College, the Canadian Society for Brain, Behavior, and Cognitive Science (CSBBCS), and the Town of Sackville. This support is so helpful in keeping the conference going and making it more financially accessible to students. Thanks also to our Psychology student volunteers who are helping out with registration, social events, and other set up. We are also grateful to the Psychology Department faculty and lab instructors who are helping out with judging of student presentations. Last but certainly not least, thank you to our student intern Allison Crinkley, who did the bulk of the organizing to make this all happen!

We hope you enjoy your time at the conference, and that get a chance to explore a bit of Sackville. We highly recommend the Waterfowl Park!

Lisa Dawn Hamilton & Gene Ouellette

Conference co-chairs
Keynote Speaker

Dr. Melissa Burgess Moser – Ph.D., L. Psych.

Dr. Burgess Moser is a clinical psychologist in private practice in Moncton, NB. She has 14 years of clinical experience in the psychological assessment and treatment of adults with a variety of mental health issues. Her areas of specialization include the treatment of eating disorders and post traumatic stress. She also treats couples experiencing relationship distress.

She completed her undergraduate and masters degrees in psychology at UNBSJ, specializing in attachment theory and romantic relationship functioning. She obtained her Ph.D. in clinical psychology from the university of Ottawa. Her dissertation research focused on how individuals’ attachment styles shifted over the course of Emotionally Focused Couple Therapy. Dr. Burgess Moser’s clinical approach is strongly rooted in attachment theory. She integrates key aspects of this theory with several different evidenced based approaches to clinical treatment.

With her colleagues, she has published several papers in the Journal of Marital and Family Therapy, the Journal of Relationship and Couple Therapy, Person- Centered and Experiential Psychotherapies, and the Open Access Journal PLOS ONE.

Attachment, Affect Regulation and Mental Health: From Survival to Growth Mechanisms

Most of us experience and demonstrate one or more predictable patterns of attachment based emotions, thoughts, and behavior in our close relationships. Attachment theorists and researchers continue to hold that some aspects of these patterns are formed by our early attachment bonds with our primary caregivers. These attachment patterns help us to identify how comfortable we feel with intimacy in our adult relationships, but also the different ways we understand and manage emotions alone and in relation to others. In optimal early attachment relationships, where parents display higher levels of attachment security, we learn how to regulate our emotions through our caregivers’ sensitivity and responsiveness to our needs. We also learn how to reflect and think about our own and others’ emotions based on the degree to which our caregivers explicitly reflect on our collective emotional world. In less than optimal attachment environments, we are not given the same opportunities to develop these emotion regulation strategies. Our caregivers’ own attachment insecurity leads us to feel disconnected from, and confused and frightened by our and others’ internal emotional world. As a result, we are left to adopt alternative and generally less helpful ways to manage our emotional needs. These alternative ‘survival strategies’ have been shown to contribute to mental health diagnoses such as chronic depression, anxiety, and disorders typically pathologized as ‘characterological deficits’. The good news is that over the last 10 years, there has been a growing body of research demonstrating that attachment security can increase over the course of therapeutic interventions. This research has also helped to elucidate the factors associated with secure attachment and healthier ways to manage emotions. Learning how to better reflect and communicate our emotions to others, and encouraging either stronger self-reliance and/or greater interpersonal vulnerability in close relationships, can help us overcome the challenges associated with less than optimal early attachment environments.
Awards

Science Atlantic Science Communication Award

(Sponsored by Canadian Science Publishing)

The Science Atlantic Science Communication Award is offered at each of the annual Science Atlantic-sponsored student conferences. The prize is awarded to the student who is best able to communicate a science topic to his or her peers. The award consists of a letter of commendation and a $200 cash prize.

The award may be split into two prizes (one for an oral and one for a poster presentation) at the discretion of the judging committee.

The Karen Nicholson Award in Neuropsychology

(Presented at the Annual Science Atlantic Psychology Student Conference. First presented in May 2008)

The Karen Nicholson Award in Neuropsychology is presented annually for the best Neuropsychology undergraduate presentation (oral or poster) at the Science Atlantic Psychology Conference. Preference will be given to presentations dealing with human neuropsychology.

Science Atlantic Undergraduate Research Award

(formerly the NSERC Representatives’ Undergraduate Student Award, 2004-2012)

This award is presented to the student (or students) giving the best research presentation(s) at an annual Science Atlantic conference. A total of $400 is available for each conference.
Thank-you to our Sponsors

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CSB

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Sackville

NEW BRUNSWICK

Pearson

MountAllison UNIVeRSITY
## Schedule

### Monday, May 6

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>5:00-7:00 pm</td>
<td>Reception/Registration</td>
<td>Campbell Hall Residence</td>
</tr>
<tr>
<td>5:30-7:00 pm</td>
<td>Faculty Meeting</td>
<td>McCain Student Centre Room 125</td>
</tr>
<tr>
<td>7:00-10:00 pm</td>
<td>Social Meet &amp; Greet</td>
<td>The Pond, (Student Pub) McCain Student Centre</td>
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</table>

### Tuesday, May 7

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:30-8:30 am</td>
<td>Breakfast</td>
<td>Jennings Hall</td>
</tr>
<tr>
<td>8:30-8:45 am</td>
<td>Welcome Address</td>
<td>Crabtree M14</td>
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<tr>
<td></td>
<td>Dr. Jean-Paul Boudreau</td>
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</tr>
<tr>
<td>8:45-9:30 am</td>
<td>Keynote Presentation</td>
<td>Crabtree M14</td>
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<tr>
<td></td>
<td>Dr. Melissa Burgess-Moser</td>
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<tr>
<td>9:45-11:00 am</td>
<td>Poster Session 1 and Nutrition</td>
<td>Tweedie Hall</td>
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<td></td>
<td>Break</td>
<td>McCain Student Centre</td>
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<tr>
<td>11:00-12:15 pm</td>
<td>Oral Presentations</td>
<td>Avard Dixon Rooms 111, 112, 120, G10</td>
</tr>
<tr>
<td>12:15-1:15 pm</td>
<td>Lunch</td>
<td>Jennings Hall</td>
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<tr>
<td>1:30-3:00 pm</td>
<td>Oral Presentations</td>
<td>Avard Dixon Rooms 111, 112, 120, G10</td>
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<tr>
<td>3:00-4:15 pm</td>
<td>Poster Session 2 and Nutrition</td>
<td>Tweedie Hall</td>
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<td>Break</td>
<td>McCain Student Centre</td>
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<tr>
<td>4:30 – 5:00 pm</td>
<td>Faculty Evaluation Meeting</td>
<td>McCain Student Centre Room 125</td>
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<tr>
<td>4:15-6:30 pm</td>
<td>Break for Students</td>
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<tr>
<td>6:30-9:30 pm</td>
<td>Banquet &amp; Awards Dinner</td>
<td>PCCA Lobby</td>
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<td>Purdy Crawford Centre for the Arts</td>
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## Oral Presentations

11:00 am – 12:15 pm

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker 1</th>
<th>Speaker 2</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 am – 12:15 pm</td>
<td><strong>Clinical / Counselling / Forensic</strong> - Avard Dixon Room G10</td>
<td>Akua Agyare</td>
<td>The Connection between Internal and External Environments and Alexithymia in Children</td>
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<tr>
<td></td>
<td></td>
<td>MeiLing McVicar</td>
<td>Predicting Life Satisfaction: The Impact of Emotion Regulation and Parental Attachment</td>
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<td></td>
<td></td>
<td>Olena Gryshchuk</td>
<td>Validation of the ODARA for Male and Female IPV Perpetrators and Personality Traits</td>
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<td></td>
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<td>Isaac Cormier</td>
<td>Examining Correlates of Victim-Age Polymorphism</td>
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<td>Abigail Peyton</td>
<td>University Counselling and Psychological Services: Exploring Current Approaches and Student Perceptions</td>
<td></td>
</tr>
<tr>
<td>11:00 am – 12:15 pm</td>
<td><strong>Health</strong> - Avard Dixon - Room 112</td>
<td>Robert Hicks</td>
<td>The Effect of Training on Hospice Palliative Care Volunteers' Ability to Deal With Unusual End-of-Life Phenomena</td>
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<tr>
<td></td>
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<td>Sarah Shannon</td>
<td>Oral Care for an Aging Population: Are Dental Practices Prepared?</td>
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<td></td>
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<td>Moira Kinney</td>
<td>“What do I do? Where do I start? Who do I talk to?”: Challenges of information navigation among informal caregivers of older adults</td>
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<td></td>
<td></td>
<td>Elizabeth Dreise</td>
<td>&quot;We're Not Doing it to be Nasty!&quot;: Informal Caregivers' Accounts of Negotiating Driving Safety with their Aging Loved One</td>
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<td></td>
<td></td>
<td>Jocelyn Braun</td>
<td>Caregivers of Children with Complex Care Needs' Experiences with Using Online Peer Support</td>
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<tr>
<td>11:00 am – 12:15 pm</td>
<td><strong>Biopsych</strong> - Avard Dixon - Room 120</td>
<td>Jenn Leckey</td>
<td>Analysis of the combined effects of Multiple Sclerosis and Depression on the MMN and P300</td>
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<td></td>
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<td>Laura Pimer</td>
<td>Multiple Sclerosis and Mismatch Negativity: Are Depressive Symptoms Related to Pre-Attentional Deficits?</td>
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<td></td>
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<td>Shelby Foeller</td>
<td>Influence of Caffeine and Menstrual Cycle Phase on Resting EEG Power</td>
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<td></td>
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<td>Morgan Nesbitt</td>
<td>The Role of Syntax in Songbird Communication: An Analysis of Song Order in the Hermit Thrush (Catharus guttatus) Song.</td>
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<tr>
<td>Kirsten</td>
<td>Even Further Evidence in Favor of Prior Entry from Endogenous Attention to a Location in Space; a Replication Study</td>
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<tr>
<td>Adrianna</td>
<td>Exploring theory of mind and language in children: A preliminary discussion</td>
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<tr>
<td>Kaelan</td>
<td>Oh Canada: Does System Justification affect Motivated Recall and False Memories for Indigenous Issues?</td>
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<tr>
<td>Pascale</td>
<td>The Association of Hot and Cool Executive Function in Social Rule Learning in Preschool Children</td>
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<tr>
<td>Corey</td>
<td>The Same-Different Task: Implications of Redundant Attributes on the Decision-Making Process</td>
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### Oral Presentations

2:30 pm – 3:45 pm

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Julia</td>
<td>Cognitive Mechanisms Involved in Managing Past and Future Painful Events</td>
</tr>
<tr>
<td>Rachelle</td>
<td>Does a &quot;Funny Voice&quot; Make for a Distinctive Memory Trace?</td>
</tr>
<tr>
<td>Liam</td>
<td>Auditory Working Memory: Exploring Differences Between Musicians and Non-Musicians</td>
</tr>
<tr>
<td>Derek</td>
<td>An Examination of Scalar Short-term Memory Decay Using a Delayed Match-to-Sample Task</td>
</tr>
<tr>
<td>Mylene</td>
<td>Do women and men process uncleanliness and disorder the same way? Evidence of attentional bias.</td>
</tr>
<tr>
<td>MinJi</td>
<td>Examining the Impact of Timbre on the SMARC Effect</td>
</tr>
</tbody>
</table>

### Sexuality & Gender

- Chase Valiant: Campus Pride Index
- Briea Malloy: Constructions of "Faking Orgasm" in Women's Magazines
- Airica MacDougall: Factors Associated with Sexual Consent Attitudes: The Role of Parent-Child Communication
- Shaunacey Murray: How Women Students' Endorsement of Sexist Attitudes Predict Performance on Intellectual Tasks and Overall GPA
- Caitlin Barry: The Influence of Social Factors on the Relationship Between Sexual Orientation and Mental Health
- Kiersten Mangold: The Influence of Athletic Identity and Masculine Norms on Concussion Reporting in Sports
**Social / Health / Educational** - Avard Dixon Room G10

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Stephanie Tipple</td>
<td>Perceptions of the Effects of Recreational Marijuana Use</td>
</tr>
<tr>
<td>Taylor McAulay</td>
<td>Physical Activity and Wellbeing: An Analysis of Their Weekly Association</td>
</tr>
<tr>
<td>Anastasia Gvozdeva</td>
<td>Comparison of Sensitivity to Moral Foundations Between Two- and Four-Year Old Children</td>
</tr>
<tr>
<td>Lauren Ross</td>
<td>Academic Procrastination in First Year Undergraduates: An Intervention</td>
</tr>
<tr>
<td>Danielle Jessica Caissie Gilbert</td>
<td>&quot;I just can't&quot; Students Wellbeing and Failure to Meet Academic Demands</td>
</tr>
<tr>
<td>Samantha Webb</td>
<td>The Medium Behind the Message: An Experiment on the Delivery of Victim Impact Statements</td>
</tr>
</tbody>
</table>

**Social / Personality** - Avard Dixon Room 112

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Elizabeth van Vliet</td>
<td>Attitudes Towards Missing Women</td>
</tr>
<tr>
<td>Tara McCarthy</td>
<td>The Effects of Demand Characteristics on the Elimination Lineup</td>
</tr>
<tr>
<td>Angelica Kibets</td>
<td>Cheating in the laboratory: Examining its association with compliance and psychopathy</td>
</tr>
<tr>
<td>Greg Reid</td>
<td>Is Technology Making You Eat More? Assessing Eating Behaviour and Taste Perception During Technology Use</td>
</tr>
<tr>
<td>Aida Maghami</td>
<td>The Influence of Personality, and Social Media Comparison on Rumination</td>
</tr>
<tr>
<td>Jared Green</td>
<td>The Role of Impulsivity and Narcissism in Predicting Problematic Facebook Use and Well-Being</td>
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</table>

Science Atlantic Psychology Committee
### Poster Presentations

**9:45 pm - 11:00 am**

<table>
<thead>
<tr>
<th>#</th>
<th>Name(s)</th>
<th>Title of Presentation</th>
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<tbody>
<tr>
<td>1</td>
<td>Madison Devan</td>
<td>An examination of spectrin protein across development in human visual cortex, and following monocular deprivation in cat lateral geniculate nucleus</td>
</tr>
<tr>
<td>2</td>
<td>Laura Schneeberger</td>
<td>Does attention modulate the Colavita effect?</td>
</tr>
<tr>
<td>3</td>
<td>Tovah Kashetsky</td>
<td>Does performing a cognitively challenging task promote neuron survival in zebra finches (Taeniopygia guttata)?</td>
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<tr>
<td>4</td>
<td>Sarah Torraville</td>
<td>Exploring the Influence of Phasic and Tonic Patterns of Locus Coeruleus Activity on Exploratory Behaviour and Anxiety in Rats Using Optogenetics</td>
</tr>
<tr>
<td>5</td>
<td>Colin MacKay</td>
<td>Investigating how glutamatergic V3 interneurons differentially innervate distinct motor pools in the mouse spinal cord</td>
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<tr>
<td>6</td>
<td>Laura Dawson</td>
<td>Investigating NLRP3 and reactive oxygen species activity in murine astrocytes</td>
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<tr>
<td>7</td>
<td>Marwan Ibrahim</td>
<td>Investigating The Effect Of Peroneal Nerve Stimulation On The Transmission Of Sensory Afferents To The Contralateral Limb</td>
</tr>
<tr>
<td>8</td>
<td>Nathalie Bourgoin</td>
<td>L'effet du Donepezil sur le comportement dirigé vers l'indice des rats sign-trackers</td>
</tr>
<tr>
<td>9</td>
<td>Morgan Samantha Sana Macintosh Tse Fashir</td>
<td>Even Further Evidence in Favor of Prior Entry from Endogenous Attention to a Location in Space: A Replication Study</td>
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<tr>
<td>10</td>
<td>Lindsay Colyn</td>
<td>Methodological Considerations in Canine Biomedical Scent Detection</td>
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<tr>
<td>11</td>
<td>Perry Dykens</td>
<td>Missed connections: A brain study of autobiographical memory functioning in individuals with epilepsy</td>
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<tr>
<td>12</td>
<td>Adith Mudduraju</td>
<td>If you mind, does it matter?: The effects of mindfulness exposure on working memory training in older adults</td>
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<tr>
<td>13</td>
<td>Alexandra Mackie</td>
<td>The Effects of Studying, Testing and Distraction on Memory</td>
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<tr>
<td>14</td>
<td>Anna Walsh</td>
<td>Examining the Influence of Social Support on Psychological Distress in a Canadian Population with Symptoms of Mania</td>
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<tr>
<td>15</td>
<td>Bailey Thompson</td>
<td>How Stress and Emotional Distractions Affect Attention as Measured by Test Performance</td>
</tr>
<tr>
<td>16</td>
<td>Brittany Murphy</td>
<td>Food Insecurity, Anxiety and Test Performance</td>
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<tr>
<td>17</td>
<td>Christina Murphy</td>
<td>Exploring the Relationship Between Cannabis Use and Sluggish Cognitive Tempo in University Students</td>
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<tr>
<td>18</td>
<td>Emily Hogan</td>
<td>Stigma and the Protective Role of Social Support in Depression Among Canadians</td>
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<tr>
<td>19</td>
<td>Emma Clare Nolan</td>
<td>Preconception predator stress impairs spatial learning and memory in adult offspring following a mild stressor</td>
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<tr>
<td>20</td>
<td>Gabrielle Cloutier</td>
<td>Psychoeducational website on self-compassion: A case illustration of online self-compassionate writing for pain management.</td>
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<tr>
<td>1</td>
<td>Nicole Michaud</td>
<td>Optogenetic Activation of Vasoactive Intestinal Peptide Expressing Interneurons Alters Contrast Response Functions of Pyramidal Cells in Mouse Primary Visual Cortex</td>
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<tr>
<td>2</td>
<td>Klara Doelle</td>
<td>Phenotypes and Pathologies in a Rat Model of Moderate Traumatic Brain Injury</td>
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<tr>
<td>3</td>
<td>Samantha Edwards</td>
<td>Second-order fear conditioning of novel context and tone using olfaction as the primary conditioning stimulus</td>
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<tr>
<td>4</td>
<td>Jennifer McArthur</td>
<td>Shoulder angle predicts learning via both motor imagery and physical practice of a dart-throwing task</td>
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<tr>
<td>5</td>
<td>Luke Mungall</td>
<td>Stimulus Category and the Colavita Effect</td>
</tr>
<tr>
<td>6</td>
<td>Robyn St. Croix</td>
<td>The Impact of Feeling Connected on the Experience of Posttraumatic Growth and Psychological Distress of Young Adults with Cancer in Canada</td>
</tr>
<tr>
<td>7</td>
<td>Briana Ross</td>
<td>The Influence of Varying Foreperiods on Accuracy and Reaction Time: A Replication Study</td>
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<tr>
<td>8</td>
<td>Kiyana Kamali</td>
<td>The Effects of Probiotics on Maternal Care Behavior Quality and Consistency, and Subsequent Offspring Anxiety-Like Behaviours</td>
</tr>
<tr>
<td>9</td>
<td>Alice Chen</td>
<td>The Role of Depressive Symptoms on Changes in Cardiorespiratory Fitness and Cognition in People with Multiple Sclerosis</td>
</tr>
<tr>
<td>10</td>
<td>Steven Wilton</td>
<td>Motivational Conflict in Individuals with Low Self-Esteem: The Effect of Self-Affirmation Strength on the Trade-Off Between Anxiety and Depression</td>
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<tr>
<td>11</td>
<td>Tony Kelly</td>
<td>The Association Between Job Satisfaction and Life Satisfaction in Adults with Autism Spectrum Disorder</td>
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<tr>
<td>12</td>
<td>Jocelyn Brown</td>
<td>The Impact of Social Anxiety on Perceived Conflict-Handling Style in Negotiations</td>
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<tr>
<td>13</td>
<td>Josee Richard</td>
<td>Adolescents’ Access to Psychological Services in New-Brunswick</td>
</tr>
<tr>
<td>14</td>
<td>Justin Vinet</td>
<td>Effects of empowering leadership on employee well-being moderated by leader’s personality</td>
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<tr>
<td>15</td>
<td>Rylan Smith</td>
<td>Effects of Probiotics on Anxiety, Serotonin, and BDNF Levels</td>
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<tr>
<td>16</td>
<td>Lauren Squires</td>
<td>Emotion Dysregulation as a Mediator Between Psychological Distress and Problem Smartphone Use</td>
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<tr>
<td>17</td>
<td>Sarah English</td>
<td>Risky Decision Making in Preschoolers</td>
</tr>
<tr>
<td>18</td>
<td>Jenna Bissonnette</td>
<td>Mismatch Negativity (MMN) - Indexed Auditory Change Detection Deficits in Major Depressive Disorder</td>
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<tr>
<td>19</td>
<td>Jenna Nyka</td>
<td>The Effects of Interest in Laptop Screen Content on Nearby Peers’ Lecture Recall</td>
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<tr>
<td>20</td>
<td>Graham Hood</td>
<td>Heterosexual University-aged Students’ Perceptions of Rape and Consent in Male-on-Female Sexual Assault Vignettes</td>
</tr>
<tr>
<td>21</td>
<td>Lucas Walters</td>
<td>I got it from my mama: Exploring the relationship between maternal psychological distress and child adaptive skills as moderated by fetal sex and mediated by maternal cortisol</td>
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Poster Presentations
3:00 pm – 4:15 pm
Abstracts: Oral Presentations

Morning

Clinical / Counselling / Forensic

Akua Agyare – Mount St. Vincent University
Supervisor: Dr. Daniel Seguin

The Connection between Internal and External Environments and Alexithymia in Children

Alexithymia is a trait characterized by difficulty identifying, expressing, and describing emotions that tends to exist alongside other emotional impairments. Past research has found that internal and external influences impact the development of alexithymic tendencies. Instead of solely replicating studies that have examined these factors separately, the current study differs from previous research in that it examines how internal and external environmental factors work together to influence the prevalence of alexithymic traits in children. Parents living in the Halifax Regional Municipality who have children aged 8 and 14 years old were asked to participate in this study. Parents completed the Self-Expressiveness in the Family Questionnaire and the Children’s Alexithymia Measure. Children completed the Children’s Alexithymia Questionnaire- Self Report and the Big Five Questionnaire for Children. As a result of obtaining an insufficient sample size, potential results will be presented pertaining to the implications of this research had an interaction between parental emotional expressivity, children’s personalities, and alexithymia been found. Alternatively, the student researcher will also propose complementary theories as to why an interaction was not found between the three variables.

MeiLing McVicar – University of New Brunswick – St. John
Supervisor: Dr. Lilly Both

Predicting Life Satisfaction: The Impact of Emotion Regulation and Parental Attachment

Difficulties with emotion regulation (ER) have been positively associated with a number of adverse psychopathologies, including depression and anxiety. Insecure parental attachment, similarly, has been correlated with symptoms of depression and anxiety. Adaptive ER strategies, such as cognitive reappraisal, and secure parental attachment both have been positively linked to life satisfaction. Moreover, preliminary research suggests that both ER and parental attachment may be significant predictors of life satisfaction. The current study sought to investigate the relations between ER, parental attachment, and life satisfaction. Specifically, the purpose of this study was to determine whether ER or parental attachment accounted for more of the variance in predicting life satisfaction. A total of 88 participants were recruited from the introductory psychology participant pool at the University of New Brunswick Saint John. They were administered a number of questionnaires addressing ER, attachment, and life satisfaction. Greater ER ability and more secure parental attachment both positively correlated with higher life satisfaction. Moreover, mother attachment, and ER were both found to be significant predictors of life satisfaction.
Validation of the ODARA for Male and Female IPV Perpetrators and Personality Traits

The purpose of the current study was to assess the validity of the Ontario Domestic Assault Risk Assessment (ODARA) tool for intimate partner violence (IPV) and to determine whether the additional assessment of key personality traits supplemented its predictability. It was hypothesized that additional consideration of antisocial and borderline personality traits would predict subsequent IPV above and beyond the ODARA total score for both male and female perpetrators. To test this hypothesis, a sample of 303 male and female IPV cases reported to local municipal police force between 2011 and 2016 were examined and followed for a minimum of one year post-index to identify subsequent police reported IPV events involving the same suspect. Receiver operating characteristic curve (ROC) analyses found chance predictive validity for police completed ODARA total score for both genders, \( AUC = .569, 95\% CI [.467, .671] \). However, personality traits produced moderate to large effect sizes for predicting IPV recidivism for males, \( AUC = .711, 95\% CI [.639, .783] \), and females, \( AUC = .817, 95\% CI [.724, .910] \) respectively. These traits had incremental validity over the ODARA based on logistic regression analysis, \( R^2_N = .117, c^2(1) = 10.141, p = .001 \). These results inform potential modifications to the ODARA to better appraise the risk of intimate partner violence in police settings.

Examining Correlates of Victim-Age Polymorphism

Victim-age polymorphism occurs when a serial sexual offender has victims across multiple age groups (e.g., children and adults). The present researchers sought to examine potential correlates of victim-age polymorphism in a provincial offender sample. Analyses were conducted using secondary clinical assessment data \( (n = 387) \) on male participants with two or more victims. Results showed that 23.9\% \( (n = 89) \) of offenders were characterized as polymorphic. There were no significant associations between polymorphic behaviour and psychopathy, multiple paraphilias, sexual preoccupation, or substance abuse disorders. There was a significant association between offenders’ victim age groups and the presence of a psychotic spectrum disorder \( (p = .04, \phi_c = .15) \); however, this association was primarily explained by psychosis in those with adult victims. These findings provide important information for future research on correlates of victim-age polymorphism in serial sexual offenders, as further analysis may aid clinicians in better understanding polymorphic offending.

University Counselling and Psychological Services: Exploring Current Approaches and Student Perceptions

Across Canada, university counselling and psychological services (CPS) have experienced an increase in both student demand for assistance and complexity of presenting issues. The literature suggests that many universities are struggling to meet the needs of their students and are exploring various systems and methods (e.g., triage systems, online services) to address the need. Further, students’ perceptions of the adequacy and availability of these services are not well represented in the literature. The present study: 1) explored the on-campus counselling and psychological services offered at 55 Canadian universities through analysis of their online information; 2) investigated students’ perceptions of counselling and psychological services at Grenfell Campus, MUN, through a sample of 204 participants (159 women, 20
men, and 25 unspecified) with a mean age of 20.79 years (range: 18-42). The results indicated that while the majority of participants were aware of Grenfell's counselling and psychological services (78.9%), a much smaller percentage (19.6%) used the services. Student perceptions were analyzed across a wide range of domains, including type of service, expectations of service options, barriers to accessing the service, and the adequacy and efficacy of additional mental health resources, in relation to the Canadian university context.

Health

Robert Hicks – Mount Allison University
Supervisor: Dr. Stephen Claxton-Oldfield

The Effect of Training on Hospice Palliative Care Volunteers' Ability to Deal With Unusual End-of-Life Phenomena

Unusual happenings in the last days/weeks of a dying person’s life are more common than most people think. The goal of this study was to evaluate the effectiveness of a training module on unusual end-of-life phenomena (EOLP) in improving hospice palliative care (HPC) volunteers’ perceived ability to deal with EOLP in their work with dying patients and their families. Training on the topic of unusual EOLP has been identified as a need by HPC volunteers (Claxton-Oldfield, Gallant, & Claxton-Oldfield, 2018). The module consisted of a 45-minute, 27-slide PowerPoint lecture. A comparison of pre- and post-training scores on the 25-item, Coping with Unusual End-of-life Experiences Scale (CUEES) - developed specifically for this study - revealed significant differences on 7 items, suggesting that volunteers felt more knowledgeable about EOLP following the training. Significant pre- and post-training differences were also found on 4 of 5 intuitively created CUEES subscales. The implications and limitations of the findings are discussed.

Sarah Shannon – Mount Allison University
Supervisor: Dr. Odette Gould & Christine Wooley (BSc, RDH)

Oral Care for an Aging Population: Are Dental Practices Prepared?

The current study examined the extent to which dental practices are accommodating the needs of older patients. The sample consisted of 121 female New Brunswick dental hygienists with a mean age of 41.28 years (SD = 11.04 years). Participants were asked to indicate the rate at which they currently provide accommodations for older patients (both non-dementia and dementia patients) along with the acceptability of these accommodations within their practice. Furthermore, participants were asked to rate their level of knowledge on oral healthcare-related topics relevant to older adults. Results indicated that, overall, dental practices are not accommodating the needs of older patients (especially dementia patients) and are not sufficiently knowledgeable on the assessed healthcare-related topics. It was suggested that future studies employ mixed methods to determine how best to implement changes to increase practice accessibility and the frequency of accommodations made for older patients.
Moira Kinney – St. Thomas University
Supervisor: Dr. Michelle Lafrance

“What do I do? Where do I start? Who do I talk to?”: Challenges of information navigation among informal caregivers of older adults

Informal caregivers of older adults provide the care and support that enable their loved ones to ‘age in place’. While important, the role of the informal caregiver can be a taxing one that presents multiple challenges. In this paper, we explore the accounts of twenty-five informal caregivers who described their experiences of providing support to older adults in New Brunswick. Participants identified many challenges, however navigating the health care system and securing information were described as central hurdles. We will present a thematic analysis of the challenges participants described as well as their strategies for coping. Suggestions for policy and practice based on this analysis will be discussed.

Elizabeth Dreise – St. Thomas University
Supervisor: Dr. Michelle Lafrance

"We're not doing it to be nasty!": Informal caregivers' accounts of negotiating driving safety with their aging loved one

The focus of this research is on informal caregivers of older adults in New Brunswick, individuals providing unpaid assistance to spouses, parents, and others with ongoing health needs. Interviews were conducted with 28 informal caregivers and here, we analyzed the accounts of 14 who identified driving safety as a challenge. Using a thematic analytic approach, we explored participants' talk of instances of dangerous driving of their loved one, the use of coping strategies to address driving safety, and additional challenges that arose from their attempts to manage. Participants highlighted the complexity of navigating driving safety and the difficulty of managing the resistance posed by their care recipient, family, and doctors. The findings of the study indicate the need for reform within the current licensing and health systems in place in New Brunswick to better support informal caregivers and the loved ones for whom they are caring.

Jocelyn Braun – Mount Allison University
Supervisor: Dr. Rima Azar and Dr. Shelley Doucet

Caregivers of Children with Complex Care Needs' Experiences with Using Online Peer Support

It is common for people to seek support when facing complex situations to help reduce the negative effects and gain insight, however finding this support can be difficult. This study addresses gaps in the literature regarding caregivers of children with complex care needs (CCCN) experiences accessing and using online peer support in relation to caring for their child. A telephone interview was conducted with 11 caregivers of CCCN who have accessed services in six Canadian provinces. Interviews were transcribed and analyzed using inductive thematic analysis. The caregivers’ experiences reflected three themes relating to facilitators of participating in online peer support (1) having a strong administration, (2) being a part of a group with other caregivers of CCCN who have similar needs, and (3) being part of a group with other caregivers who are actively engaged in the group. The six themes extracted for barriers included: (1) lack of information, (2) lack of time, (3) lack of diagnosis, (4) personal barriers, (5) polarization of politically-charged topics, and (6) perceived social pressures. Additionally, there were eight themes relating to benefits to using online peer support, including: (1) reduced social isolation, (2) opportunity to gain information, (3) parenting skills development, (4) bi-
directionality of support, (5) increased self-confidence, (6) stress reduction, (7) optimism about the future, and (8) low time commitment. Participants described risks associated with an online forum, including (1) privacy concerns, (2) individuals taking advantage of anonymity, (3) misinformation, and (4) negative thinking. Participants also provided suggestions for how online peer support can best be offered and six themes were identified, including (1) being aware of where online peer support fits in the continuum of support; (2) being cautious and not taking everything at face value; (3) creating an environment where people are comfortable to share experiences; (4) offering ways to meet in-person if desired; (5) have strong administration supporting the online group; and (6) being made aware of the support available. This research indicated that access to an online peer support network can reduce the negative effects that come from caring for CCCN and can provide a platform to encourage caregivers development in many domains, including caregiver knowledge and skills.

Biopsych

Jenn Leckey – Mount St. Vincent University
Supervisor: Dr. Derek Fisher

Analysis of the combined effects of Multiple Sclerosis and Depression on the MMN and P300

Multiple Sclerosis (MS) is the most prevalent neurodegenerative disease in the world. Depression is observed in up to sixty percent of MS patients. Behavioural evidence suggests that the presence of depression further compounds cognitive impairments among MS patients; however, there is a lack of neurophysiological evidence to support this. The objective of our research is firstly, to examine event related potentials (ERPs) (MMN, P3a and P3b), as neural measures of attentional processes in individuals with MS, and secondly, to examine the effect of depressive symptoms on these waveforms. The Hospital Anxiety and Depression Scale (HADS) was administered to measure depressive symptoms, and the ERPs were elicited by a novelty oddball task. MS patients did not significantly differ from healthy controls on ERP measures, which suggests that highly functioning MS patients may not be experiencing deficits at the cognitive level. Upon subsequent analysis, MS patients with high depressive symptoms demonstrated a decreased amplitude of both the MMN and P3a waveforms compared to those with low depressive symptoms. Although these are preliminary results, they lend support to the behavioural evidence and suggest that depressive symptoms likely influence cognitive functioning in people with MS.

Laura Pimer – Mount St. Vincent University
Supervisor: Dr. Derek Fisher

Multiple Sclerosis and Mismatch Negativity: Are Depressive Symptoms Related to Pre-Attentional Deficits?

Multiple sclerosis (MS) is one of the most common neurodegenerative diseases in North America and it is frequently associated with brain-based deficits. MS is often comorbid with depression, which is linked with symptoms of cognitive impairments as well, raising the question whether depressive symptoms in MS are associated with cognitive deficits. While there are many studies that have examined cognitive deficits in MS measured by behavioural responses, only a few studies examined neurophysiological measures of cortical function in MS patients, such as the mismatch negativity (MMN). The MMN is an event-related potential that indicates automatic auditory change detection. This study aimed to examine whether MMN endpoints measured by EEG differ in patients with relapsing-remitting MS and healthy controls (HCs), and whether depressive symptoms are related to MMN measures. A multi-feature MMN paradigm, which includes 5 distinct deviant tones, was used to assess auditory cortex function in MS patients. It was found that participants with MS showed significant larger MMN amplitudes for four deviant tones compared to HCs (p < .05). Depressive symptoms were not related to neurophysiological deficits; however, anxiety symptoms were related to
increased MMN amplitudes in the MS group for tones who differ in intensity. While some aspects of brain function may be impaired in MS, auditory change detection abilities appear to be improved in our sample, suggesting the possibility of adaptive plasticity in the MS brain. Anxiety, rather than depression, may influence neurophysiological functioning in MS patients.

Shelby Foeller – Mount St. Vincent University
Supervisor: Dr. Derek Fisher

Influence of Caffeine and Menstrual Cycle Phase on Resting EEG Power

The female menstrual cycle occurs in distinct phases that are characterized by fluctuating concentrations of estrogen and progesterone, the dominant female sex hormones. Fluctuations in these hormones have been found to produce changes in neural architecture and cognitive processes. There is relatively little research regarding the effects of menstrual cycle phase on the brain, including how psychoactive drugs effect the brain across phases. Caffeine is the most widely consumed psychoactive drug in Canada and there is also relatively little research regarding its effects on the brain. The present study aimed to investigate the impact that caffeine has on the resting female brain using electroencephalography (EEG), while accounting for the different phases of the menstrual cycle. The study included 27 naturally cycling female that were assigned to groups based on their menstrual phase at the time of participation (menstrual, follicular or luteal). The participants attended two sessions, one receiving a caffeine dose and one receiving a placebo dose (administered in a randomized, double-blind, counterbalanced manner). Resting EEG was recorded while participants' eyes were closed for 3 minutes. A phase effect for alpha was found due to reduced EEG power in the menstrual phase. Alpha asymmetry showed greater left activation hemisphere in the menstrual phase, consistent with theories of behavioural avoidance. The menstrual phase seems to be hyper-excitible but is associated with a lack of motivation. Additionally, during the follicular phase only, reduced delta activity was observed following caffeine administration compared to the placebo. These findings suggest that the effects of caffeine on resting neuronal function differ according to menstrual cycle phase.

Morgan Nesbitt – University of New Brunswick – St. John
Supervisor: Dr. Sean Roach

The role of syntax in songbird communication: An analysis of song order in the hermit thrush (Catharus guttatus) song.

Songbird communication has important evolutionary and ecological implications but also has potential applications in many human studies, including that of human language acquisition and perception (Abe & Watanabe, 2011). The similarities between birdsong and human speech make songbirds an ideal candidate for use in human models (Brainard & Doupe, 2013). Additionally, vocal cues are crucial to male-male interactions and certain species have been shown to alter their songs in response to territorial intruders (Hedley, Denton, & Weiss, 2017). However, it is impossible to generalize this research because of the high level of variation between and within species' songs (Podos, Peters, Rudnicky, Markler & Nowicki, 1992). Of these variations, the current study focuses on the use of syntax in communication in the Hermit Thrush; a migratory songbird common to North-America. Repertoire sizes ranged from 7-13 song-types and could be divided into high and low frequency groups which birds cycled through with a high degree of predictability. It was found that when classifying song-types into high/low frequency categories, birds sang with greater consistency which is indicative of a more ordered song. As well, we identified redundant song-types within repertoires and found that they were similar in both structure and frequency. These results have interesting implications regarding how birds perceive song-types and open avenues for future research exploring the significance of these syntactical elements in conspecific communication.
Even Further Evidence in Favor of Prior Entry from Endogenous Attention to a Location in Space; a Replication Study

The laws of prior entry state that attended objects are perceived faster than unattended objects. Previous research has provided contradictory results about the presence of prior entry (Shore et al., 2001; Schneider & Bavelier, 2003). The goal of our current experiment was to replicate a previous study by Redden et al. (2017) which incorporated an orthogonal color probe task into the original TOJ paradigm in order to settle the discrepancy in previous literature and determine if prior entry exists under endogenous cueing. We hypothesized that prior entry would show effects under the endogenous cueing condition. The present study used a modified TOJ task with an orthogonal color probe task to further reduce any response biases and assess prior entry independent of response mechanisms. Effects of attention on prior entry and probability of color encoding were replicated from Redden et al. (2017). Other findings from the experiment will be discussed.

Exploring theory of mind and language in children: A preliminary discussion

Studies have been conducted that have looked at theory of mind and language in children. Currently there have been three aspects of language that have been linked to theory of mind development; pragmatics, syntax, and semantics. This presentation proposes a study that would look at all three of these aspects of language and theory of mind for the first time. Additionally, most studies have looked at language comprehension abilities in children in relation to theory of mind. It has been noted in other studies that language production in children does have a significant impact on theory of mind development. This proposal includes a focus on language production instead of comprehension and outlines the implications that this can have on researchers understanding on the relationship between theory of mind and language in children.

Oh Canada: Does System Justification affect Motivated Recall and False Memories for Indigenous Issues?

Previous research on system justification theory (SJT) suggests that individuals are more likely to respond defensively on behalf of their social, economic, and political systems when they perceive a threat to those systems, and that a perceived system threat can affect information processing. The current research sought to examine system threat and justification of the social order, as measured by biased recall and susceptibility to false memories, in the context of Canada’s treatment of Indigenous peoples. Participants read either a high or a low system-threatening article about Indigenous peoples in Canada, followed by a neutral article. They then completed a system justification scale, a recall test based on information from the neutral article, and read a summary of the neutral article. For half the participants, false details (misinformation) about the neutral article that minimized the seriousness of some issues were presented in
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the summary. After a 48-hour delay, participants completed a memory test based on information from the summaries. The hypotheses that participants in the high system threat condition would score higher on the system justification scale, be more likely to misremember information and exhibit biased memory in a system-exonerating direction on the recall test, and be more likely to remember the misinformation on the memory test after 48 hours were not supported. These findings suggest the system threat manipulation was not effective, and some implications of this are discussed.

Pascale Haidar - Mount Allison University
Supervisor: Dr. Nancy Garon

The Association of Hot and Cool Executive Function in Social Rule Learning in Preschool Children

The current study examined the association between social rule learning, hot EF, and cool EF among 53 preschool children. The sample of participants were aged between three and four (M = 3.452 years, SD = 0.503) and was comprised of 30 males and 23 females in Atlantic Canada. Participants completed a number of executive function task including working memory, inhibition, shifting, delay of gratification, and decision making. Participants also completed a social rule learning task, which included a feedback learning phase and a rule following phase where children were given the rule. Generalization of the social rule was assessed at the end of each phase. Age, hot EF and cool EF were all predictors in hierarchical multiple regressions. There were two main findings. Children who had better hot EF scores were better at generalizing the social rule they learned in the first phase. Children who had better cool EF scores were more efficient about following the rule they were given in Phase 2. These results suggest that both hot and cool EF are important for norm following, cool EF is important for when a norm or rule is given, and hot EF is important for rule learning.

Corey Rideout – Memorial University of Newfoundland
Supervisor: Dr. Bradley Harding

The Same-Different Task: Implications of Redundant Attributes on the Decision-Making Process

Since its discovery by Bamber (1969), there have been many attempts to explain the fast-same phenomenon. However, no theory has provided an acceptable explanation of its mechanism. In the current study, the redundant attribute of color was added to the stimuli in the Same-Different task, similarly seen in Harding (2018, 2013). Twenty-three undergraduate students from Grenfell Campus (MUN) voluntarily participated in this study. Each trial included the presentation of two sequential stimuli (i.e. strings of letters varying from 1 to 4 characters in length). The colors of the two stimuli were either matching (Red/Red or Blue/Blue) or mismatching (Red/Blue or Blue/Red). Participants were asked to indicate whether the stimuli were the ‘Same’ or ‘Different’ solely based on the identity of the letters in each string (e.g. ‘Same’: J vs. J; and ‘Different’: J vs. B); colors were to be ignored. Graphical analyses indicated that the fast-same phenomenon did occur in the data. A graphical analysis also revealed that the participants’ response times (ms) for mismatching color trials were higher than those of the matching color trials for all ‘Same’ conditions; however, a 4’2 between-groups ANOVA revealed this difference was not significant (p = .418). Although not significant, the difference between mismatching and matching color conditions could be a result of how hard the decision-making mechanisms had to work; an increase in cognitive load could have led to this increase in response time.
Abstracts: Oral Presentations
Afternoon

Cognitive

Julia Rose – Memorial University of Newfoundland
Supervisor: Dr. Jonathan Fawcett, Dr. Joshua Rash

Cognitive Mechanisms Involved in Managing Past and Future Painful Events

Our ability to control what we remember and forget affects our emotional well-being. For example, memories of painful experiences can lead to problematic behaviours like avoidance of necessary medical care. Our goal was to determine whether the ability to forget negative aspects of pain-related experiences influences adults’ ability to cope with pain. In the present study, we extended Marche et al.’s (2016) study with children to adults. Using a retrieval-induced forgetting paradigm, we examined whether retrieval of positive aspects of painful experiences lead to the forgetting of negative aspects, and whether this was related to participants’ experiences of pain during a cold-pressor task. Participants generated details about two recent painful experiences. Afterwards, they learned a subset of these details and practiced the positive aspects of those experiences. Then, in a test phase, they tried to recall all learned details pertinent to the painful memories. Whereas practicing positive details of past painful experiences failed to significantly inhibit recall of negative details overall, we did find a significant relationship between participants’ degree of retrieval-induced forgetting and their self-reported pain intensity during the cold-pressor. Participants’ tendency to catastrophize about pain acted as a moderator of this relationship; those scoring low in catastrophizing benefitted from suppressive ability (reported lower pain intensities), while those scoring high in catastrophizing did not benefit. Our non-significant RIF findings and our failure to replicate Marche et al. (2016) casts doubt on whether retrieving positive aspects of painful experiences suppresses negative aspects for everyone.

Rachelle Wakeham-Lewis – Memorial University of Newfoundland
Other authors: Ozubko, Jason (State University of New York at Geneseo)
Supervisor: Fawcett, Jonathan

Does a "Funny Voice" Make for a Distinctive Memory Trace?

The production effect refers to the finding that words read aloud are better remembered than words read silently. A distinctiveness-based account of this phenomenon suggests that production results in a distinctive memory trace that facilitates retrieval. Therefore, anything that makes the productive act more distinctive should result in a larger production effect. To test this account, a standard production task was modified to include a distinctive voice condition (specifically, the voice of Elvis). Furthermore, each participant was assigned to a "High-Voice" group (most words read in Elvis' voice) or a "High-Self" group (most words read in their own voice). The purpose of this variable was to further manipulate the distinctiveness of production in a novel voice by varying the relative frequency of that voice. Contrary to our hypothesis, the production effect for words read in a distinctive voice was no larger than the production effect for words read in one's own voice; in face, only in the "High-Voice" group did we find a reliable production effect for the distinctive voice condition. Results are discussed in term of the mechanisms and cognitive effort involved in reading words aloud in a voice other than one’s own.
Liam Foley – Memorial University of Newfoundland
Supervisor: Aimee Surprenant, Jonathan Fawcett

Auditory Working Memory: Exploring Differences Between Musicians and Non-Musicians

Investigations into auditory working memory have often utilized methods which lend to capacity-based models. Recent literature in other domains, namely visual working memory, have instead shown evidence for a general resource model of working memory. In addition, the auditory working memory literature has often not compared musicians and non-musicians despite plenty of neurological and cognitive evidence of differential processing across various modalities. This study investigated performance of musicians and non-musicians in an auditory working memory task. Participants were presented a series of tones and were then instructed to match an audio slider to one of the previously presented tones. Using a multilevel mixture-modelling framework, performance was decomposed into (a) the probability of retrieving the tone, and, (b) the fidelity with which that tone was represented. It was found that whereas musicians represented tones in working memory with greater fidelity, they were less likely to retrieve those tones in the first place. However due to model constraints, either pattern should be considered a trend. These finding could indicate differential processing of auditory information in musicians, but the interpretation is limited pending further methodological development.

Derek Bailey – St. Thomas University
Supervisor: Dr. Tyler Bancroft

An Examination of Scalar Short-term Memory Decay Using a Delayed Match-to-Sample Task

Recent research into the cognitive and neurobiological nature of Short-Term Memory (STM) has repeatedly found results which conflict with dominant theories pertaining to STM. Interestingly, research employing scalar stimuli has shown scalar stimuli are held within a modality-independent storage substrate within the frontal lobe. To further explore this vein of research, this study seeks to investigate whether an analogue to the subjective shortening effect can be observed for STM of auditory pitch. Participants were tested using a delayed match-to-sample task in which two auditory pure tones were presented, separated by a delay period that varied between trials. It is the goal of the research to see whether manipulation of the delay period interval will alter the memory for the target stimuli. Implications and future research paths are discussed in the Results and Discussion sections.

Mylène Dumont – Université de Moncton
Supervisor: Mylène Lachance-Grzela et Annie Roy-Charland

Do women and men process uncleanliness and disorder the same way? Evidence of attentional bias.

In order to demystify how couples share housework, researchers have proposed an integrative theoretical model introducing the notion of tolerance threshold to uncleanliness (Alberts et al., 2011). They suggested that differences in tolerance to uncleanliness and disorder among members of a couple could explain an unequal division of labour. The aim of this study was to explore cognitive processes that could influence individuals’ contribution to household labour. We investigated whether visual processing of rooms with varying levels of disorder and uncleanliness and self-reported levels of discomfort at presentation of these rooms differed by gender. In general, we postulated that gender, type of room, and level of cleanliness interact to influence time spent viewing the rooms and self-reported comfort levels. A sample of 52 individuals rated their comfort level in regards to a series of pictures of rooms, each with increasing levels...
of uncleanliness, while their viewing times were measured. Results revealed that, compared to men, women spent more time viewing the rooms before producing their comfort rating. Women required less time to produce their comfort ratings when the rooms were very dirty, whereas men required less time when the rooms were very clean. These results are discussed in light of Alberts and colleagues’ (2011) model.

MinJi Kim – University of New Brunswick – St. John
Supervisor: Dr. Jonathan M. P. Wilbiks

Examining the Impact of Timbre on the SMARC Effect

Music perception involves both visual and auditory processing. The spatial compatibility between stimulus and response influences the response-selection process - an effect known as the Spatial-Musical Association of Response Codes (SMARC) effect. In this study, the impact of timbre on the SMARC effect was explored across two experiments. Participants were examined in both auditory and visual stimuli and were asked to judge the pitch of the auditory stimulus they heard. Tones were presented in different timbres for each experiment: Experiment 1 compared piano and flute; Experiment 2 compared human vocal tones and birdsong. In the first experiment, results showed that piano tones have a stronger SMARC effect than flute tones at high pitches, likely because of the piano's construction, which is congruent to the horizontal SMARC effect. Also, a stronger SMARC effect was found on low pitches comparison to high pitches. In the second experiment, results showed that there were no significant differences in the SMARC effect between human vocal sounds and those of an owl. Overall, these findings suggest that timbre plays a role in the strength of the SMARC effect only to the extent that the timbre can be associated with the spatial orientation of the source of the sound.

Sexuality & Gender

Chase Valiant – Cape Breton University
Supervisor: Heather Schmidt

Campus Pride Index

This semester I did a directed studies project to assess how Cape Breton University (CBU) is meeting the needs of LGBTQ students. Throughout my project I built a literature review as it relates to LGBTQ inclusion on university campuses. Additionally, I used the Campus Pride Index (CPI) that was launched in 2007 in response to the increasing demand for tools and resources to support campuses in assessing LGBTQ-friendly policies, programs, and practices (Garvey, Rankin, Beemyn & Windmeyer, 2017). The CPI assesses eight factors, some of which include counselling and health, housing, and campus safety. These eight factors provide a framework for administrators to evaluate their current environment, review recommended changes, and measure future progress (Garvey et al., 2017).

My project supervisor Heather Schmidt and I applied to the CPI and our application was approved. To answer the question on the CPI we consulted with campus officials in several departments that are familiar with CBU’s LGBTQ policies and practices. Specifically, to answer the CPI questions we facilitated discussion with the coordinator of the Pride and Ally Centre, CBU’s Human Rights Officer, and two members of the Faculty Equity Comity. The responses were then submitted to the Campus Pride and they sent back a confidential report. I will present a summary of the CPI report and related literature. Moreover, I will discuss what my campus is doing well and specific recommendations for future improvements.

Briea Malloy – St. Thomas University
Constructions of "Faking Orgasm" in Women's Magazines

Faking orgasm has been found to be a popular practice among women. It has been positioned within dominant constructions of heterosex both as a way to validate the skill of a male lover and as a way to end ‘problem’ sex. In the current research, these constructions of the practice of faking orgasm were explored further by examining how fake orgasm was portrayed in women’s magazines. Magazines have been identified as an important contributor to dominant discourses surrounding women, gender relations, and sexuality. Using constructionist thematic analysis, several themes surrounding faking orgasm were identified in 67 online articles published by two popular women’s magazines: Cosmopolitan and Glamour. The results of the analysis will be presented from a feminist poststructuralist perspective in order to explore how socio-cultural power structures contribute to the construction of sexuality, including sexual pleasure and orgasm.

Airica MacDougall – University of New Brunswick - Fredericton
Supervisor: Dr. Sandra Byers

Factors Associated with Sexual Consent Attitudes: The Role of Parent-Child Communication

Sexual consent is freely giving verbal or non-verbal communication for sexual activity. Few researchers have investigated attitudes toward consent, despite the role of attitudes in influencing behaviours. Therefore, this study assessed consent attitudes among male and female undergraduates as well as factors (gender, parent-child communication, conservative attitudes, sexual experience, age) associated with these attitudes. Undergraduate students (33 men, 104 women) completed an online survey in the laboratory that included three types of consent attitudes (perceived behavioural control, positive attitudes toward establishing consent, sexual consent norms). Results indicated that the students on average had positive attitudes towards sexual consent; there were no gender differences. On average, parents had talked to both their sons and daughters about sexual consent in general terms only. Multiple regression analyses indicated that more parent-child communication and more liberal attitudes were significantly associated with more perceived behavioural control, and younger individuals reported significantly more positive attitudes towards establishing consent. The variables were not significantly related to sexual consent norms. The results suggest that consent attitudes are positive and highlight the importance of parents discussing sexual consent with their children in terms of perceiving less difficulty asking for consent in a sexual encounter.

Shaunacey Murray – University of New Brunswick – Fredericton
Supervisor: Dr. W. Q. Elaine Perunovic; Kendra McLaughlin

How women students' endorsement of sexist attitudes predict performance on intellectual tasks and overall GPA

Benevolent sexist attitudes are attitudes that seem positive but portray women as less competent than men (e.g., the belief that women should have men's protection). In contrast, hostile sexist attitudes are attitudes that are blatantly negative toward women. Previous research has shown that after exposure to benevolent sexist attitudes, women performed worse on cognitive tasks than after exposure to hostile sexist attitudes (Dardenne et al., 2007). In addition, research shows that women students whose self-worth is more contingent on their academic performance do better on intellectual tasks (McLaughlin & Perunovic, 2013). In the current research, women students (N = 177) completed a series of questionnaires assessing their sexist attitudes, contingencies of self-worth, identity, and self-esteem, as well as completed several LSAT logic questions and reported their GPA. We observed that endorsement of benevolent sexist
attitudes, when controlling for the variance in GPA accounted for by hostile sexist attitudes, negatively significantly predicted overall GPA scores such that higher endorsement of benevolent sexist attitudes was associated with low GPA scores. We also found that academic self-worth contingency was positively associated with overall GPA, such that higher academic self-worth contingency predicted higher GPA scores. The implication of these findings will be discussed.

Caitlin Barry – University of New Brunswick – St. John
Supervisor: Dr. David Speed

The influence of social factors on the relationship between sexual orientation and mental health

Canadian sexual minorities are a group of individuals who self-identify as lesbian-gay-bisexual-transgender (LGBT). Research has revealed that this population experiences an increased rate of mental illness. This higher incidence of psychopathology can be misconstrued as a direct result of sexual orientation, when indeed it may be caused by adverse social experiences. While other Canadian researchers have touched on various inequalities faced by this vulnerable population, there has been a lack of empirical evaluation as to why LGBT people experience poorer mental health. The proposed thesis critically examined how minority stress features, such as increased negative social interactions, exacerbate poor mental health in Canadian sexual minorities, and highlighted the contribution of social experiences to mental health adversity. Using the 2012 Canadian Community Health Survey – Mental Health (CCHS-MH), a nationally representative dataset of Canadians (n > 22,000), researchers tested the minority stress theory in the context of Canadian non-heterosexuals. The central analysis was statistical mediation and several hierarchical regression models were examined. Due to Statistics Canada's complex sampling strategy for data collection, weighted estimates were used in all regression models to ensure accuracy. Results indicated that negative social interactions partially mediate the relationship between sexual orientation and mental health outcomes, including depression and satisfaction with life. This represented the first test of the minority stress theory in non-heterosexual Canadians, and suggested that a substantial component of the relationship between sexual orientation and mental health is explained by poor social exchanges.

Kiersten Mangold – Mount Allison University
Supervisor: Dr. Jennifer Tomes

The Influence of Athletic Identity and Masculine Norms on Concussion Reporting in Sports

The present study investigated individual differences in concussion reporting behaviour by student-athletes, focusing on self-identity and the current sport culture. A survey was administered to examine participants’ self-reported athletic identity, conformity to masculine norms, level of involvement in sport, previous history of concussion, and concussion reporting intent and behaviour. Participants included 226 university students, 107 of whom had previously sustained at least one concussion, and all of whom were involved in sport to varying degrees. Of the participants who had previously sustained a concussion, 51.4% reported that they had hidden an injury during a sports game. Results indicated that a stronger sense of athletic identity and a higher number of previous concussions were associated with having previously hidden concussion symptoms in the past and with being willing to do so in the future. Conformity to masculine norms was a significant predictor of only future intentions to hide concussion symptoms. Findings have implications for athletes’ adherence to sports injury rehabilitation programs, and may allow for the identification of those individuals who are at the greatest risk of hiding a concussion in sports.
Perceptions of the Effects of Recreational Marijuana Use

Marijuana is one of the most widely used recreational drugs in North America. Although the research literature has examined levels of use, acceptance of use, and perceptions of risks associated with use, there have been limited studies of the perceptions of the specific risks and benefits of recreational marijuana use. The purpose of this study was to explore perceptions of the risks and benefits of recreational marijuana use and the relationship with level or degree of use. The participants were 378 individuals, 281 women and 97 men, with a mean age of 26.51 years (range: 18–71), who voluntarily completed an anonymous online questionnaire that assessed endorsement of a range of risks and benefits associated with recreational marijuana use. There was no difference overall in participants’ endorsement of the risks and benefits of recreational marijuana use. When the perceptions of risk and benefit for those who used marijuana ($n = 301$) were compared to those who did not ($n = 77$), there were significant differences. Those who used marijuana perceived the benefits to be higher than non-users and non-users perceived the risks to be higher than users. Regression analyses indicated that level of use was a significant predictor of endorsement of the risks and benefits, with higher level of use associated with higher endorsement of benefit and lower endorsement of risk.

Physical Activity and Wellbeing: An Analysis of Their Weekly Association

Research has shown that there is a positive relation between sedentary behaviour and psychological distress, anxiety symptoms, and negative self-esteem. In contrast, research has demonstrated that physical activity may counteract these effects by providing anxiolytic and mood-enhancing effects. Understanding the relation between exercise and wellbeing is important, as we do not yet know how regular exercise impacts wellbeing on a weekly basis. Thus, the present study seeks to examine whether weekly exercise dose is predictive of weekly wellbeing. A secondary objective is to determine whether the impact of exercise on wellbeing varies across subcategories of wellbeing (overall, interpersonal, individual, or social). Participants in this study were undergraduates with elevated mood and anxiety symptoms who were engaging in a psychological intervention involving group cognitive behaviour therapy and physical exercise. As part of the intervention, participants completed a seven-week “learn to run” program. Each week, participants completed measures of wellbeing and exercise. The results indicated that total weekly exercise was a significant predictor of all categories of wellbeing. The relation between exercise and wellbeing varied across each category. High and low intensity exercise was also found to moderate the effect of exercise on wellbeing. As most studies examining exercise and wellbeing consider them on a global basis (i.e., overall exercise and wellbeing), findings from this study help us better understand the nuances behind these global associations. Such knowledge can inform the development of effective physical activity interventions for mental health problems.
Comparison of Sensitivity to Moral Foundations Between Two- and Four-Year Old Children

For a long time, moral psychology focussed primarily on issues of care and fairness. In 2012, Haidt et al. developed Moral Foundations Theory (MFT) to broaden the range of concerns considered to be moral and proposed the existence of five moral foundations (care, fairness, loyalty, authority, and sanctity). Whereas the theory has been supported in adult populations, virtually no research has studied moral development of young children using MFT as a guiding framework. The current study explored and compared the sensitivity of 2- and 4-year old children to the five moral foundations proposed by MFT using two tasks. In the Moral Foundations Puppet Task (MFPT), children watched videos of puppets engaging in different moral acts, and then indicated their favourite puppet and which puppet behaved badly. This task was completed by both age groups. Another measure, the Moral Foundations Questionnaire for Kids (MFQ-K), involved answering questions about different moral vignettes. It was completed by 4-year-olds only. Contrary to our predictions, we failed to observe 2-year-olds sensitivity to the MFPT scenarios. Four-year-olds, however, were found to be sensitive to the care, fairness, sanctity and some aspects of authority foundations. A positive correlation between the two measures (MFPT and MFQ-K) was only found for the loyalty foundation. This study was the first to explore young children’s sensitivity to the five moral foundations and can serve as a basis for the subsequent studies of moral development through MFT framework.

Academic Procrastination in First Year Undergraduates: An Intervention

Academic procrastination interventions have had mixed results (Eckert, Ebert, Lehr, Sieland, & Berking, 2018; Glick & Orsillo, 2015). So, the current study aims to provide evidence to this body of research, to help answer whether an intervention on procrastination is beneficial. As the majority of undergraduates report chronic academic procrastination, the objective of the current study was to design an intervention to help reduce academic procrastination in first-year undergraduates specifically. We used pre-intervention and post-intervention questionnaires (MSLQ, APQ, PASS, and ASRS) to assess participants’ reported academic procrastination tendencies, their ability to self-regulate, and their motivations for completing school work. From the results of the pre-intervention questionnaires, we developed an intervention which took place in a classroom setting of approximately 40 participants at a time. The intervention used individual feedback and hands-on activities as well as presented by the campus learning strategist to separate this intervention from previous ones. The participants consisted of traditionally aged first-year undergraduates and were mostly female. We predicted that the participants would procrastinate less on the behavioral measure of procrastination (their assigned online quizzes) once receiving the intervention. Our report includes information on the nature and frequency of academic procrastination and the effectiveness of a procrastination intervention. The results of this research provide insight on first-year undergraduate procrastinators and how best to intervene so that it does not continue to interfere with academic performance.
Danielle Caissie & Jessica Gilbert - St. Thomas University  
Supervisor: Drs. Marvin Claybourn and Suzanne Prior

"I just can't" Students' wellbeing and failure to meet academic demands

Students’ mental health is a growing concern on many university campuses, particularly as it relates to their academic success (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Existing literature on the mental health of Canadian university students is sparse but tends to indicate that students experience a wide range of mental health difficulties which might adversely impact their academic performance (Kirsh, et al., 2014). The present study added to this growing body of research and explored the relationships between university students’ mental health, resilience, coping styles, internalized stigma, and academic behaviours. A range from 182 to 161 undergraduate university students responded to questionnaires measuring diagnosis, wellbeing, resilience, coping, and failure to meet academic demands over a six-week period of the first academic semester. An ANOVA revealed that those who have a diagnosis, high internalized stigma, and low resilience experience increased failure to meet academic demands and decreased wellbeing.

Social / Personality

Elizabeth van Vliet – Memorial University - Grenfell  
Supervisor: Dr. Daniel Nadolny

Attitudes Towards Missing Women

Indigenous women have different experiences in Canada than do other women. It was speculated that this may be the result of in-group favouritism. Even if one is not directly prejudiced, biases have ways of impacting people’s thoughts and behaviours in subtle ways. The current study surveyed 267 people in order to look at whether or not the race of a woman reported missing in a newspaper article had any impact on whether readers felt different levels of empathy. Results showed that there were no significant differences in empathy levels. Exploratory analyses were also conducted, and found that several of the participants identified the woman in the article as having Indigenous heritage when there was in fact no mention of her heritage at all. Some findings related to charity donations were also discussed. This showed that the topic of the study may have primed people into thinking about Indigenous women, which could show that there is an issue surrounding Indigenous women in Canada. Future research should examine these results more closely and conduct a bigger-scale study in hopes that the results hypothesized would be achieved.

Tara McCarthy – Memorial University - Grenfell  
Supervisor: Dr. Kelly Warren

The Effects of Demand Characteristics on the Elimination Lineup

Research assessing the effectiveness of the elimination lineup technique has generally demonstrated a low rate of choosing in both target absent and target present scenarios. In the present study, 101 participants watched a video of a fictitious, non-violent crime then viewed either a target absent or target present lineup using the elimination lineup technique. This was done in an attempt to determine possible demand characteristics that could explain low rates of
choosing. However, in the current study there was a high rate of choosing an individual from the lineup regardless of lineup type. Binary logistic regression analyses were completed to assess predictors of whether participants chose someone from the lineup, accuracy of decision, and whether opinion changed regarding the guilt or innocence of the individual selected when asked to look at him twice. Specifically, the possible role of personal morals and fifteen demand characteristics potentially inherent to the lineup was explored. Responses to the four moral questions provided did not predict the decision to choose, accuracy, or opinion changes. However, demand characteristics (e.g., viewing the lineup for a second time) did predict the decision to choose and changes in the opinion. Results suggest the importance of considering demand characteristics when designing police lineups.

Angelica Kibets – St. Mary’s University
Other authors: Hyland, Kathleen
Supervisor: Ternes, Marguerite

Cheating in the laboratory: Examining its association with compliance and psychopathy

Academic cheating is a serious issue among university students, with approximately 80% of students admitting to cheating. Previous studies, which have examined cheating retrospectively, have shown that compliance and psychopathy are related to cheating or helping someone cheat. The present study aimed to gain a better understanding of cheating by investigating cheating in a laboratory setting. All participants completed logic problems with specific instructions to complete them individually. A confederate asked half of participants for help on the logic task, encouraging the participants to cheat. Participants then completed questionnaires measuring individual difference variables, including psychopathy, compliance, and past academic misconduct. It was expected that most participants would help their peers if asked, and students scoring high on compliance and psychopathy would be more likely to cheat. It was also expected that participants who reported past academic misconduct would be more likely to cheat in a laboratory setting. Data collection is ongoing, but the results in this study suggest an association between cheating and compliance. This study provides a better understanding of the personality traits associated with cheating behaviour, which can have an impact on improving detection and prevention of academic cheating. If there is an association between cheating and certain personality traits common among university students, this information can be used to implement future preventative measures, such as alternate exam forms or clear warnings regarding the use of cheating detection programs.

Greg Reid – Memorial University – Grenfell
Supervisor: Dr. Peter Stewart

Is Technology Making You Eat More? Assessing Eating Behaviour and Taste Perception During Technology Use

Research has yet to examine how taste perception and the amount of food eaten is impacted by alterations in the attention rooted in technology use. Particularly, when using a smartphone and/or watching television while eating. It was hypothesized that when more attention is devoted to technological stimuli (i.e., television or smartphone), taste perception ratings would change (noticeably increase or decrease). It was also hypothesized that the participants would eat more food as they directed their attention away from the technological stimuli and towards the snack foods that they were eating. Forty-two individuals aged 18-29 (Mean = 21.07, SD = 2.21), completed two trials in which they were given snack foods to eat. In trial one, all participants viewed the same episode of the television show Friends while in trial two, participants either viewed the same episode as trial one, or a different episode of Friends, with or without the
use of their smartphone. Results obtained from the current study show an anecdotal trend suggesting that when more attention was focused on the technology, there were minimal changes in taste intensity than when more attention was directed toward the food. Results for the quantity (grams) of food eaten across trials showed trends consistent with Mathur and Stevenson (2015). Although no hypotheses were statistically supported, there were anecdotal trends suggesting that attention impacts taste perception and food consumption.

**Aida Maghami** – University of New Brunswick – St. John  
Other authors: McVicor, MeiLing  
Supervisor: Dr. Caroline Brunell

The Influence of Personality, and Social Media Comparison on Rumination

The unprecedented growth and popularity of social media platforms use and the potential for social comparison between people have concerned researchers about how they impact mood. In addition, different personality traits can have different effects on a person’s psychological well-being. This study investigated the impact of two personality traits (hopelessness and anxiety sensitivity), social comparison, and social media use on rumination. Students from the University of New Brunswick in Saint John, (N=88; M=22.51, SD=7.24) completed questionnaires on personality traits (SURPS), rumination (RRS), social media use (SMUQ), and social media comparison (SCRS). Hopelessness and anxiety sensitivity were found to predict rumination (respectively $\beta=.515, p <.001$; $\beta=.290, p <.01$), whereas social media use ($\beta=.221, p <.05$) was found to have positive effect on mood. In addition, social media comparison ($\beta=.131, p=.262$) was not found to be a predictor for rumination. This study highlighted the importance of hopelessness and anxiety sensitivity personality traits in predicting rumination and the positive role of social media use to improve human’s mood. Interventions aiming at reducing rumination in university students should pay attention to their personality traits as potential targets of intervention.

**Jared Green** – University of New Brunswick – St. John  
Supervisor: Dr. Enrico DiTommaso

The Role of Impulsivity and Narcissism in Predicting Problematic Facebook Use and Well-Being

For many individuals, Facebook is an important part of their daily routine. Individuals use Facebook to keep connected with friends and family, and to stay up to date on the latest news. However, for some, the use of Facebook is not benign. For these individuals, Facebook use manifests in a more problematic manner. The current study examined the relationship between personality characteristics, specifically, passion, narcissism and impulsivity, and an individual’s experience of problematic Facebook use (PFU) and well-being in a sample of 241 undergraduate students. It was hypothesized that obsessive passion, along with greater levels of narcissism and impulsivity, would be associated with higher levels of problematic Facebook use and lower levels of well-being. It was also hypothesized that narcissism and impulsivity would predict elevated levels of PFU and well-being over and above passion. The results of this study indicated that people who displayed more passion for Facebook tended to experience greater levels of problematic Facebook use. Results also suggested that impulsivity was a significant predictor of both problematic Facebook use and well-being, whereas narcissism only significantly predicted well-being. Lastly, both narcissism and impulsivity predicted well-being over and above passion, whereas, only impulsivity predicted PFU over and above passion. Implications of these findings are discussed, as well as the strengths and weakness of the study design, and directions for future research are outlined.
Abstracts: Poster Session
Morning

1. Madison Presunka & Devan Pancura – Dalhousie University
   Supervisor: Kevin Duffy

   An examination of spectrin protein across development in human visual cortex, and following monocular deprivation in cat lateral geniculate nucleus

   Disruption to normal vision during so-called critical or sensitive periods can modify the structure of neurons and neural connections, and can lead to a severe vision impairment called amblyopia. Decades of research on synaptic plasticity mechanisms have revealed the NMDA receptor plays a critical role in mediating the refinement modification of visual neural circuitry during the critical period. Spectrin is an actin-binding protein that has been implicated as a regulator of NMDA channel activity through its stabilizing effect on the receptor. Spectrin therefore is understood to play an enabling role in visual neural plasticity. In the current study, we quantified the level of spectrin protein in samples of human primary visual cortex (V1) across the lifespan, and we also measured the effect of monocular deprivation on spectrin labeling within the lateral geniculate nucleus (LGN). Our examination of human V1 revealed maximum spectrin at ages when plasticity levels are high. Further, we discovered that a brief period of monocular deprivation, sufficient to provoke structural modification, reduced spectrin within layers of the LGN serving the deprived eye. In aggregate, these results demonstrate a relationship between spectrin and neural modification in V1 and LGN, consistent with playing a regulatory role in visual system plasticity.

2. Laura Schneeberger – Mount Allison University
   Supervisor: Desmarais, Geneviève

   Does attention modulate the Colavita effect?

   Whether attention impacts multisensory integration is unclear: some research indicates that attention modulates integration while other does not. Often, studies reporting an effect of attention use more highly-demanding primary tasks and secondary tasks than studies that do not. We therefore examined the effect of attention on audiovisual integration by using a Colavita task (where participants typically fail to detect the auditory component of an audiovisual stimulus) and varying the demands of a secondary task. Participants reported the modality (e.g. visual, auditory, or audiovisual) of either abstract or concrete stimuli, and completed these tasks under full attention or while concurrently completing a foot tapping pattern that was simple (Experiment 1) or complex (Experiment 2). In Experiment 1, participants produced more errors during bimodal trials, but there was no Colavita effect, and no effect of attention. Experiment 2 produced a Colavita effect (there were more ‘visual-only’ than ‘auditory-only’ errors in response to bimodal trials), but this effect was not modulated by attention. These findings suggest that, when a relatively easy task like modality detection is used, attention does not affect audiovisual integration. It is therefore possible that the demands of the primary task influence whether attention will influence integration.
3. **Tovah Kashetsky** – Dalhousie University  
Supervisor: Dr. Leslie Phillmore, Sean Aitken

Does performing a cognitively challenging task promote neuron survival in zebra finches (Taeniopygia guttata)?

This study investigated the effect of cognitive enrichment on neural cell survival in zebra finches (Taeniopygia guttata). Subjects were injected with the cell birth marker bromodeoxyuridine (BrdU) after preliminary training to use a Go/No-Go operant discrimination apparatus, then divided into three groups: discrimination task (earn all food from correctly performing the acoustic discrimination task), yoked (heard all stimuli presented to a discrimination bird in real time, but food was ad libitum), and control (food ad libitum and heard nothing). Through immunohistochemistry, the number of surviving BrdU+ cells were quantified in neural regions associated with processing complex vocalizations and song (caudomedial mesopallium, caudomedial nidopallium, and HVC), and a control region unrelated to acoustic processing (hyperpallium apical). Results did not support the hypothesis that there would be more cell survival in birds that performed the discrimination task compared to birds that did not perform the task, or the hypothesis that within the discrimination task group, birds with better performance would have more cell survival compared to birds with lesser performance. However, in the right hemisphere of HVC, yoked birds had a significantly higher number of BrdU+ cells than discrimination birds. We speculate that if this trend were to continue with a larger sample size, perhaps the discrimination task group had decreased cell survival compared to the yoked group due to stress or food restriction, and that listening to stimuli alone could increase cell survival compared to hearing nothing.

4. **Sarah Torraville** – Memorial University of Newfoundland  
Other authors: Edwards, Samantha; Power, Kyron; Ghosh, Abhinaba  
Supervisor: Yuan, Qi

**Exploring the Influence of Phasic and Tonic Patterns of Locus Coeruleus Activity on Exploratory Behaviour and Anxiety in Rats Using Optogenetics**

The locus coeruleus (LC) is a small brainstem nucleus that produces and releases norepinephrine (NE) to elicit effects throughout the brain and body which have implications in emotional regulation and learning and memory. The LC has two distinct firing patterns, either in bursts (phasic) or continuously (tonic). Phasic bursts are associated with optimal task performance, while low tonic firing is associated with inattention and high tonic firing is associated with stress and anxiety. Cell-type specific activation of LC neurons can be achieved by optogenetics, a technique that recently became available in rats. This work examined the effects of different modes of LC activation (tonic vs. phasic) on a rat’s behaviours using optogenetic LC stimulation. Viral infusion of channelrhodopsin-2 (ChR2) light-sensitive ion channels into LC allowed for light-controlled stimulation of LC neurons. We used 10 Hz phasic, 10 Hz tonic, and 25 Hz tonic stimulation to observe changes in exploratory behaviour within an open field maze (OFM) compared to baseline and 10 Hz tonic stimulation to assess anxiety in an elevated plus maze (EPM). Tonic LC stimulation was found to have frequency dependent inhibitory effects on locomotor exploratory behaviour while phasic stimulation had no significant effect on exploration. Surprisingly, tonic stimulation did not induce anxiety-like behaviour. Overall, this study opens up multiple possibilities for future experiments focused on the LC using optogenetics.
5. Colin MacKay – Dalhousie University

Investigating how glutamatergic V3 interneurons differentially innervate distinct motor pools in the mouse spinal cord

The neural mechanisms that underlie locomotion consist of interneuronal circuits that work together to produce patterned and rhythmic motor outputs. V3 interneurons (INs) in the spinal cord are a major group of excitatory commissural INs that directly innervate motor neurons (MNs) and are essential in establishing a robust and balanced locomotor rhythm during walking. Beyond this, the exact role of V3 INs in locomotion has not been well defined. MNs in the lumbar spinal cord are clustered together, such that MNs innervating the same hindlimb muscle will occupy a discrete anatomical domain, termed a ‘motor pool’. The organization of these motor pools in the spinal cord mirrors the organization of the muscles of the hindlimb, with more ventrally-located motor pools innervating more proximal muscles, and more dorsal motor pools innervating more distal muscles. In the present study, we wanted to investigate the level of glutamatergic V3 inputs onto MNs belonging to various motor pools involved in locomotion. Specifically, we investigated glutamatergic V3 inputs onto flexor and extensor muscles of the hip, knee, and ankle. Using immunohistochemical techniques and imaging software, it was found that the motor pools controlling muscles at the hip joint, received the highest amount of V3 innervation. The findings of the present study provide evidence for the differential direct innervation of V3 INs to motor pools for all studied hindlimb muscles and provide potential insight into better understanding the role that V3 INs play in locomotor circuits.

6. Laura Dawson – Memorial University of Newfoundland
Supervisor: Moore, Craig

Investigating NLRP3 and reactive oxygen species activity in murine astrocytes

Neuroinflammation is a key feature of many neurodegenerative diseases and is mediated largely by microglia and astrocytes. The NLRP3 inflammasome contributes to inflammation by producing pro-inflammatory cytokines in response to diverse activating stimuli, however its role in astrocytes requires further study. The mechanism of NLRP3 activation is not well understood but may involve production of reactive oxygen species. To investigate NLRP3 activity in astrocytes, primary astrocytes were derived from neonatal murine brains. NLRP3 expression was primed with LPS or TNF then activated with ATP or nigerin. MCC950 or vehicle was applied prior to activation to inhibit NLRP3. NLRP3 protein expression, IL-1β secretion, cell viability, and ROS production were then measured. LPS and TNF both induced NLRP3 protein expression, however only LPS-primed astrocytes showed increased IL-1β secretion upon exposure to ATP or nigerin, which was strongly inhibited by MCC950. Nigerin and ATP both induced cell death, which may have been partially rescued by MCC950 in NLRP3-primed cells. Priming and activation stimuli had no clear effect on ROS production, however treatment with 5μM MCC950 inhibited ROS production. Overall, this study demonstrated that NLRP3 can be expressed and activated in murine astrocytes and supports the value of MCC950 as a potent inhibitor of NLRP3 with potential preventative effects on pro-inflammatory cell death. Given the importance of astrocytes and NLRP3 in pathological neuroinflammation, NLRP3 activation in astrocytes may play an important role in disease and presents a promising therapeutic avenue for treating neuroinflammatory disease.
7. Marwan Ibrahim – Dalhousie University
   Other Author: Laflamme, Olivier
   Supervisor: Turgay Akay

   Investigating the Effect of Peroneal Nerve Stimulation on the Transmission of Sensory Afferents to the Contralateral Limb

   Activation of sensory afferents in one leg has been known to elicit motor responses on the opposite side of the body. This is a type of reflex movement defined as crossed reflex, and it has been examined extensively using cat and human models. Interneurons known as commissural interneurons, whose axons cross the midline of the spinal cord to the contralateral side, also have been described using cat models. However, the role of these commissural pathways and the type of sensory signals they transmit during the crossed reflex remain obscure in mice. This research aimed to present a detailed analysis of the mechanisms underlying sensory signal transmission to the contralateral side in mice using electrophysiological approach. This was done by using in vivo stimulations of the left peroneal nerve combined with simultaneous electromyogram recordings from multiple muscles of the right leg. We show that left peroneal nerve stimulation evoked motor responses in all recorded muscles of the left leg. These responses are mediated by a combination of proprioceptive and cutaneous sensory afferents. Furthermore, we also conducted bilateral stimulations of the left peroneal and right sural nerves to look for inhibitory crossed pathway. We provide evidence for an inhibitory pathway in the crossed reflex controlling the activity of some, but not all recorded muscles. Overall, this research project provides a detailed analysis for excitatory, as well as inhibitory crossed reflex pathways transduced by sensory signals from peroneal nerve stimulations. The data presented contribute to the understanding of crossed reflexes in wild-type mice.

8. Nathalie Bourgoin – Université de Moncton
   Supervisor: Frédéric Huppé-Gourgues

   L’effet du Donepezil sur le comportement dirigé vers l’indice des rats sign-trackers

   En présentant un levier suivi de nourriture, les rats « sign-trackers » ont tendance à engager avec le levier, même si celui-ci n’est pas en fonction. Ce faible contrôle attentionnel est en partie attribuable à l’atténuation de leur système cholinergique. Le Donepezil, un médicament utilisé pour pallier les symptômes de la maladie d’Alzheimer, empêche la dégradation de l’acétylcholine en inhibant l’enzyme acétylcholinestérase. Était donné que le Donepezil améliore l’attention en augmentant le taux d’acétylcholine, on s’attend à ce que son administration diminue les comportements dirigés vers le levier chez les rats « sign-trackers » et augmente leurs comportements dirigés vers la récompense. Cette hypothèse est testée en comparant les scores PCA de 26 rats Long-Evans avant et après l’administration de différentes doses de Donepezil : 0 mg/kg, 0.25 mg/kg, 0.5mg/kg et 1.0 mg/kg. Dans cette étude, les rats effectuent la tâche d’autoapprentissage dans une boîte de Skinner, où un levier est présenté pendant 8 secondes, suivies de nourriture. L’administration de différentes doses de Donepezil n’a pas montré d’effet significatif sur les patrons de comportements des styles individuels d’approches. Ces résultats négatifs pourraient en partie s’expliquer par d’autres variables pharmacocinétiques que notre étude pilote ne pouvait contrôler. L’efficacité de ce médicament pourrait même mener à une piste de traitement pour les jeux pathologiques et les autres troubles de dépendance chez les humains.
9. Morgan Macintosh, Samantha Tse & Sana Fashir – Dalhousie University
   Other: Lebelle, Kirsten
   Supervisor: McCormick, Colin; Redden, Ralph

Even Further Evidence in Favor of Prior Entry from Endogenous Attention to a Location in Space: A Replication Study

The laws of prior entry state that attended objects will be perceived faster than unattended objects. Previous research has provided contradictory results about the presence of prior entry (Shore et al., 2001; Schneider & Bavelier, 2003). The goal of our current experiment was to replicate a previous study by Redden et al. (2017) which incorporated an orthogonal color probe task into the original TOJ paradigm in order to settle the discrepancy in previous literature and determine if prior entry exists under endogenous cueing. We hypothesized that prior entry would show effects under the endogenous cueing condition. The present study used a modified TOJ task with an orthogonal color probe task to further reduce any response biases and assess prior entry independent of response mechanisms. Effects of attention on prior entry and probability of colour encoding were replicated from Redden et al. (2017). Other findings from the experiment will be discussed.

10. Lindsay Colyn – Dalhousie University
   Supervisor: Dr. Simon Gadbois

Methodological Considerations in Canine Biomedical Scent Detection

Dogs possess olfactory capabilities far beyond those of humans and as a result, their scent processing abilities can be harnessed for medical diagnostics. In the field of biomedical detection, dogs are increasingly used to detect volatile organic compounds in patients both in vitro and in vivo. Previous studies have examined canines’ ability to detect cancer, infections agents, and hypoglycemia in individuals with Type 1 diabetes. Methodologically, these studies have mostly used discrimination tasks which is problematic as these scent processing tasks have the potential to result in performance bias. Previous studies have also used a wide range of materials in the experimental procedures, as no methodological standards exist in the field. This study initially aimed to investigate the accuracy of training methods in biomedical detection dogs, however after potential contamination and cueing issues, methodological and apparatus considerations in experimental set-up were re-evaluated. Dogs trained on discrimination and/or detection tasks were evaluated for performance over time. As changes in experimental set-up occurred, performance fluctuated amongst individuals, suggesting differences in the ability of the dogs to identify the target stimulus and potential contamination of the apparatus. This suggests that the range in equipment and procedures used in previous studies could have also been potentially contaminated. There is therefore a need for methodological standardization of materials and apparatuses used in canine biomedical scent detection to minimize contamination and cueing issues and to provide accurate, reliable and valid results.

11. Perry Dykens – University of New Brunswick - Fredericton
   Supervisors: Dr. K Tory Harker

Missed connections: A brain study of autobiographical memory functioning in individuals with epilepsy

An autobiographical memory is essentially the combination of facts, emotions, and movements that form a complete picture of a particular event in a person’s life. Given the large number of parts that make up an autobiographical memory, it is believed to be stored throughout the brain with several connections for each
memory. For example, seeing a person that you know should activate many brain connections to form the complete picture of an autobiographical memory. Previous research suggests that for individuals living with epilepsy this type of memory is delayed or non-existent (Viskontas, McAndrews, & Moscovitch, 2000). Using cognitive event-related potential recordings (a measure of electrical brain activity in response to a cognitive stimulus) and event-related spectral permutations (an analysis of the frequencies present in the electrical brain activity), the influences of epilepsy on how the brain processes autobiographical memories will be examined. Results and their implications will be discussed in relation to current literature on epilepsy and autobiographical memory.

12. Adith Mudduraju – Dalhousie University

Other author: Drake, Richard
Supervisor: Dr. Eskes, Gail

If you mind, does it matter?: The effects of mindfulness exposure on working memory training in older adults

Working memory (WM) is required to carry out many tasks and activities in daily life. Deficits in WM occur in normal aging. Training using the dual n-back WM task has been found to improve both WM performance and general cognition. Mindfulness meditation (MM) training has also been shown to improve WM performance. The present study combined mindfulness exposure with dual n-back training to examine the effects on WM performance and general cognition in a healthy older adult sample. There were two groups in the study: Mindfulness meditation exposure (MM) and control (audiobook exposure; AB). Both received dual n-back training following their respective group exposures for seven days. They were analyzed before, during and after training using measures which measured WM performance and general cognitive performance. The MM group was hypothesized to show enhanced n-back training effects (i.e., improved WM and general cognitive performance) compared to the AB group in all the measures. Results did not support this hypothesis. A number of factors (e.g., age, cognitive status) may have led to these null findings. Controlling for these factors and utilizing a larger sample of older adults with a longer combination paradigm duration may yield positive findings. If positive findings are found, the paradigm could be used to improve cognitive performance in older adults.

13. Alexandra Mackie – St. Thomas University

Supervisor: Dr. Sandra Thomson

The Effects of Studying, Testing and Distraction on Memory

Tests have a long history of assessing what one knows, however, tests can also be used as a learning instrument with the ability to enhance our later memory. Known as the testing effect, taking a test in which individuals must recall previously learned material has been shown to improve long-term retention above that of restudying. In the present study we assess the testing effect using educationally relevant study materials, under full versus divided attention. In this study participants read two prose passages with full attention. They then re-read one of the passages and practiced recalling the other passage. Half of the participants completed these additional tasks alone (with full attention). The other half completed them while simultaneously responding to high and low pitched tones with the mouse key (under divided attention). Participants took a final recall test seven days later under full attention. The results of the experiment were mixed. In one analysis the testing effect did not occur, passages that were restudied were remembered just as well as those retrieved. In a second, conditionalized analysis, the testing effect did occur, however, we did not find a greater testing effect under divided versus full attention.
14. **Anna Walsh** – Memorial University of Newfoundland  
Supervisor: Fowler, Ken

**Examining the Influence of Social Support on Psychological Distress in a Canadian Population with Symptoms of Mania**

Individuals who experience symptoms of mania in the form of a manic episode (ME) are at a greater risk of experiencing psychological distress. As a ME is a period during which one can become extremely socially dysfunctional, social support is an important variable to investigate in relation to how it may influence distress. The primary objective of this study was to examine whether perceived social support can predict psychological distress in a sample of Canadian adults who have self-reported symptoms of a ME within the last 12-months. Using a nationally sampled public use datafile, 220 Canadians between 20-64 years met the criteria for a ME within the last 12-months and had reported both distress levels (K10 Distress Scale) and perceived social support (Social Provisions Scale). Results indicated that the ME sample experienced significantly higher distress and significantly lower perceived social support than the Canadian population. Further, social support in the form of reassurance of worth was associated with decreased levels of psychological distress, but only for the male ME sample and the overall ME sample. Despite some limitations, including self-report and a 3% population exclusion, this study adds to the research on mania as its own experience outside of comorbidities and demonstrates the important role of social support in terms of psychological well-being.

15. **Bailey Thompson** – Mount St. Vincent University  
Other authors: Bradley, Abby; Miller, Shelby  
Supervisor: Dr Christine Lackner

**How Stress and Emotional Distractions Affect Attention as Measured by Test Performance**

We conducted a 2x2 between subjects design to assess the relationship between stress and emotion on attention. It is well known that maintaining a sufficient level of attention while completing a given task is essential for a successful performance outcome (Lafi & Pan, 2016). When there is an interruption to one's focus due to an irrelevant stimulus such as a negative emotional distraction, performance outcomes may be influenced (Calvo, Gutierrez-Garcia & Libano, 2015; Sussman, Heller, Miller & Mohanty, 2013). Furthermore, it has been suggested that stress can also directly influence the way in which one perceives a distraction (Garling, Gamble, Fors & Hjerm, 2016). Based off literature, we hypothesized that the instilment of stress, through a time pressure, while completing a test of attention will debilitate one's performance score. Additionally, because emotional distractions directly influence levels of attention, the emotional stimulus presented during the task should moderate the relationship between stress and test performance, by further decreasing test scores. Through data analysis, the results suggest that there is no direct influence of stress and emotional distractions on attentional performance, however, it appears that levels of worry and distress change the way in which one perceives stress and emotional distractions.
Food Insecurity, Anxiety and Test Performance

Food insecurity (FI) is a growing problem among post-secondary students, and has previously been shown to have negative effects on test performance (TP). We tested the hypothesis that there would be a negative relationship between FI and TP, a negative relationship between ARFI and TP controlling for GTA, and a positive relationship between ARFI and FI. Participants (N = 25, M = 21.36, SD = 3.01) completed an online questionnaire with measures of FI, ARFI, GTA and TP. There was no significant relationship found between FI and TP (β = -.104, p < .348); although there was a relationship found between ARFI and FI, controlling for GTA (R2 = .334, F(3, 21) = 3.51, p < .033), it was found that only GTA significantly predicted TP (β = .063, p < .006); results showed a strong correlation between FI and ARFI (r = .825, p > .001). The nonsignificant findings are in opposition to the literature; a stronger measure of TP is needed to conclude results.

Exploring the Relationship Between Cannabis Use and Sluggish Cognitive Tempo in University Students

Cannabis use is incredibly common amongst the young adult population in Canada. The present study is an examination of the relationship between Sluggish Cognitive Tempo (SCT) and cannabis use, when controlling for age, gender and symptoms of ADHD, anxiety and depression, in university students. One hundred and twenty participants were recruited through Memorial University’s PREP program and completed the Depression Anxiety and Stress Scale (DASS), Adult ADHD Self Report Scale (ASRS v1.1), Adult Concentration Inventory (ACI) and Cannabis Use Disorder Identification Test (CUDIT). Cannabis use was not significantly correlated with SCT (r = .120, p > .05); furthermore, SCT did not significantly predict cannabis use (R2 Change = .001, F(1, 92) = .116, p>.05). However, the model as a whole included six predictor variables which did account for a significant proportion of cannabis use variance (F(6, 92) = 2.347, p <.05). The results suggest there is further research needed on SCT to further understand if there is a relationship between SCT and substance use. Additionally, the results add to previous research explaining potential reasons why university students use cannabis.

Stigma and the Protective Role of Social Support in Depression Among Canadians

Depression is one of the most prevalent forms of psychopathology. People who report experiencing stigma due to their mental illness present worse symptoms and recovery than those who do not perceive stigma. Missing in the literature are data on the relationship between sex, perceived prejudice, perceived social support, distress and depression, particularly from a Canadian perspective. The present study sought to determine predicting variables of both distress and stigma among Canadians with depression. Data from the Canadian Community Health Survey – Mental Health (CCHS-MH) was analyzed. Firstly, independent samples t tests reported that,
when compared to the overall Canadian sample, distress was more severe and total social support was lower in participants with depression. Secondly, a hierarchical regression showed that age, sex, socioeconomic status, stigma, social integration, reliable alliance, and reassurance of worth were predictors of distress. Finally, an overall stepwise regression showed that social integration and age were predictors of stigma. Stigma accounts for additional distress in individuals with depression and social integration may help reduce the experience of stigma. A limitation of this study is that individuals who had not received a diagnosis of depression were excluded. Future studies could explore if the positive relationship between stigma and social integration and distress is evident in adolescent populations.

19. Emma Clare Nolan – Memorial University of Newfoundland
Supervisor: Dr. Jacqueline Blundell

Preconception predator stress impairs spatial learning and memory in adult offspring following a mild stressor

While risk factors for Posttraumatic Stress Disorder (PTSD) often focus on the experiences of an individual, human studies have suggested that maternal stress during pregnancy and parental stress prior to conception are related to an increased risk for PTSD in future children. Furthermore, animal studies have found that preconception and prenatal stress can influence the behaviour of subsequent offspring. Previously, our lab has found that moderate preconception predator stress produces a behavioural sensitivity in second generation mice. However, it is unknown whether this paradigm affects cognition. Individuals with PTSD are known to have impairments in some forms of learning and memory. Thus, the objective of the present study was to determine whether the offspring of predator stressed (PS) mice show impairments in spatial learning and memory or fear conditioning after a mild stressor. Male and female PS mice were given a five minute rat exposure test (RET). Controls (CN) were exposed only to the RET apparatus. All mice were bred ten days later. The F1 generation was the offspring of either two PS or two CN mice. As adults, all F1 offspring were given a two minute RET. Following the RET, subjects were trained on the Morris Water Maze (MWM), to assess spatial learning and memory, and underwent fear conditioning. PS offspring showed deficits on the MWM, but not during fear conditioning, indicating impaired spatial learning and memory. These findings suggest that a mild stressor produced cognitive deficits in the offspring of PS, but not CN, mice.

20. Gabrielle Cloutier – Université de Moncton
Other authors: Basque, Dominique, France, Talbot, & French, Douglas
Supervisor: France Talbot

Psychoeducational website on self-compassion: A case illustration of online self-compassionate writing for pain management

Internet-delivered interventions can increase access to effective treatment for individuals who may have reluctance or difficulty when pursuing traditional face-to-face care. Internet-based CBT or ACT treatment programs have demonstrated efficacy for pain management. There is growing interest in self-compassion as a contributor to psychological adjustment to persistent pain as it has been shown to lead to enhanced pain coping. Although a well-established psychoeducational website on self-compassion is available, no studies have assessed its impact when applied in the context of pain management. This website comprises several writing tasks related to self-compassion in addition to guided meditations. The purpose of this paper is to present a case
illustration of how internet-delivered self-compassionate writing can be used to enhance pain coping. A 71-year-old male suffering from arthritis completed six self-compassion writing tasks from the website over six weeks and practiced selected guided meditations. He received weekly automated emails with instructions to complete the exercises in relation with his pain condition. Treatment progress and treatment satisfaction were assessed. Excerpts from his writings are presented. Improvements were observed on measures of self-compassion, pain acceptance, pain catastrophizing and positive and negative affect. Treatment satisfaction was high, and gains maintained at a 3-month follow-up. It is hoped the present case illustration will increase clinicians understanding and interest in the use of internet-delivered self-compassionate writing for pain management. Future research directions are presented.

Abstracts: Poster Session
Afternoon

1. Nicole Michaud – Dalhousie University
   Other authors: Shapiro, Jared; King, Jill; Crowder, Nathan
   Optogenetic Activation of Vasoactive Intestinal Peptide Expressing Interneurons Alters Pyramidal Cell Contrast Response Functions in Mouse Primary Visual Cortex

   The visual system has long served as a model for investigating neural information processing due to its highly ordered structure and the availability of precisely controlled stimuli. The primary visual cortex (V1) is the first cortical stage of information processing and contains excitatory cortical pyramidal (pyr) neurons modulated by a network of inhibitory interneurons. One major class of inhibitory interneuron expresses vasoactive intestinal peptide (VIP+). We investigated the role of VIP+ interneurons in shaping V1 processing by optogenetically activated VIP+ interneurons while recording the in vivo responses of putative pyr neurons to visual contrast stimuli. Previous in vitro work describing the network connections of VIP+ interneurons indicates they directly inhibit somatostatin expressing inhibitory interneurons, therefore potentially reducing the amount of inhibition on pyr cells. We observed that in some putative pyramidal cells, the firing rates increased after VIP+ interneuron photostimulation as predicted, but surprisingly in some cells, the firing rates following photostimulation decreased.

2. Klara Doelle – Dalhousie University
   Other authors: Adegunna, Olumide; Cort, Shayna; Parker, Ellen; Moradi, Pooyan; Mumby, Griffin; Friedman, Alon
   Supervisor: Friedman, Alon
   Phenotypes and Pathologies in a Rat Model of Moderate Traumatic Brain Injury

   Traumatic brain injury (TBI) is a global health problem, defined as a change in brain function or pathology, resulting from an external force. The blood-brain barrier (BBB) is a carefully regulated interface between the central nervous system and vasculature. BBB disruption has been reported following acute epileptic seizures as well as TBI. BBB disruption is suggested to be a key mechanism in the development of delayed complications after TBI, including post-traumatic epilepsy. The present study aimed to test the feasibility and reliability of BBB imaging as a diagnostic and predictive biomarker, using a closed head weight drop model of moderate TBI in
young male rats. BBB imaging was performed 48 hours and one month after the acute trauma using dynamic contrast-enhanced magnetic resonance imaging (DCE-MRI). Delayed cognitive deficits were studied using the Morris water maze test one month post-injury. BBB disruption was found in 67% of TBI animals at 48 hours, and returned to baseline at one month in most (71%, N=5) but not all (29%, N=2) of these animals. Acute post-traumatic convulsive seizures did not reflect impaired BBB at 48 hours, but posed a potential risk factor for persistent BBB disruption. Animals exposed to a moderate TBI were cognitively impaired compared to matched controls; however, the level of cognitive deficit could not be predicted by the extent of whole brain BBB disruption measured using DCE-MRI. Future studies should examine regional differences in BBB permeability and their dynamics over time, as a diagnostic biomarker for outcome after TBI.

3. **Samantha Edwards** – Memorial University of Newfoundland
Supervisor: Qi Yuan

Second-Order Fear Conditioning of Novel Context and Tone Using Olfaction as the Primary Conditioning Stimulus

Second order fear conditioning is a paradigm that can be linked to PTSD, anxiety, and other disorders associated with fear. However, the brain circuitry and molecular changes underlying second order conditioning (SOC) are not well understood. To study the neural mechanisms of SOC, we aimed to establish SOC subsequent to first order conditioning between a novel odor and shock. The present study aimed to uncover whether context and tone can be used as second order stimuli (CS2) in a second order conditioning paradigm using odor as the primary conditioning stimulus (CS1) and shock as the aversive unconditioned stimulus (US). Rats were habituated in a shock chamber where they were later given the odor/shock pairing. Context and tone were then used as CS2 stimuli and freezing behaviour was recorded as a measure of fear response in the rats. Experiment A established the first order conditioning (FOC) of an odor with a shock. Experiment B showed successful second order conditioning (SOC) to context. Experiment C found that this was not caused by a fear generalization response, but likely a SOC mechanism. Experiment D did not demonstrate the ability of rats to form a response to tone as a CS2. Future research will involve examining these relationships between CS1 and CS2 in more detail and carrying out brain mapping studies to pinpoint the brain regions that are involved in these SOC models.

4. **Jennifer McArthur** – St. Mary’s University
Other authors: Kraeutner, Sarah; Boe, Shaun
Supervisor: Shaun Boe

Shoulder angle predicts learning via both motor imagery and physical practice of a dart-throwing task

Dart-throwing is as an ideal complex motor task to investigate learning. Measured by improvements in accuracy and consistency of each throw, learning is achieved when movements become more consistent (i.e., kinematic variability decreases). Yet, the specific kinematics that predict learning remain unknown. Furthermore, while both physical practice (PP) and motor imagery (MI) – the mental rehearsal of a motor task – are effective in driving learning of this task, how practice modality impacts the kinematics is unexplored. Accordingly, we sought to determine which kinematic outcomes predicted learning on a dart-throwing task and if these outcomes differed between PP and MI. Two groups of participants (n=12/group) engaged in five training sessions of dart-throwing via MI or PP, respectively. Performance (accuracy, consistency, and kinematic outcomes – shoulder and elbow angles at ‘take back’ and ‘release’, and release time) was assessed via physical test sessions embedded in a pre/post design. Difference scores, characterising a change in performance, were calculated for each outcome measure. Separate linear regressions were conducted with kinematic outcomes as predictors on
both accuracy and consistency. A base model without group (PP vs MI) was compared to a model with group as a predictor via ANOVA to probe the impact of practice modality. Shoulder angle at release was a significant predictor of improvements in accuracy and consistency. Importantly, the base model was not significantly improved by its alternative, indicating that practice modality did not impact the results. These findings extend the literature on the use of dart-throwing in investigations of motor learning.

5. **Luke Mungall** – Mount Allison University  
   Supervisor: Dr. Genevieve Desmarais

Stimulus Category and the Colavita Effect

The Colavita effect (Colavita, 1974) is a phenomenon in which vision tends to dominate over audition during the presentation of an audiovisual stimulus. It is a robust phenomenon resistant to several experimental manipulations, and can be demonstrated using simple and complex stimuli. Recent studies have found that stimulus category may impact the Colavita effect (Desmarais, Atkinson, Miyata, 2018) so the present study investigated this impact directly. Participants were presented with auditory, visual, and audiovisual stimuli from different stimulus categories (i.e., familiar animals, unfamiliar animals, instruments, and tools) and were asked to report the modality of the stimulus. Participants did not produce significantly more visual errors on bimodal trials and did not produce a Colavita effect. However, there was a consistent trend for participants to produce more errors on bimodal trials, and more errors in response to familiar animals than in response to other stimulus categories across all modalities. This suggests that stimulus category may be an important factor in modality detection and the Colavita effect, but a significant effect must be found to confirm this relationship.

6. **Robyn St. Croix** – Memorial University of Newfoundland  
   Other author: Lane, Breanna  
   Supervisor: Dr. Sheila Garland

The Impact of Feeling Connected on the Experience of Posttraumatic Growth and Psychological Distress of Young Adults with Cancer in Canada

Young adults (YAs) (aged 15-39) with cancer are at risk for experiencing higher levels of psychological distress (PD) than their peers without cancer. However, individuals with cancer can also experience positive consequences of cancer, including posttraumatic growth (PTG). Seeking social support and feeling connected to others through support programs offered by YA cancer organizations, provide YAs with a sense of belonging and feelings of normalcy. This study examined how feeling connected to others influences the level of PD, and the experience of PTG, of YAs with cancer in Canada. It was hypothesized that YAs with cancer that report having a greater frequency and intensity of contact with Young Adult Cancer Canada (YACC) have lower levels of PD and experience greater PTG. Frequency and intensity of contact with YACC was determined by participants’ self-reports. Data were obtained from 508 Canadian YA participants, age 20-39 ($M = 32.15$, $SD = 4.78$), who participated in the national YAC-PRIME study. A significant difference was found between varying levels of frequency of contact with YACC in the level of PTG that is experienced, particularly between individuals who report having no contact and those who report having frequent contact with YACC. It was also found that individuals who reported participating in higher intensity services offered by YACC significantly differed from those who reported participating in lower intensity services in their experience of PTG. No significant differences were found to exist between the level of PD that is experienced and frequency or intensity of contact with YACC.
7. **Brianna Ross, Kiyana Kamali & Olivia Macdonald** – Dalhousie University  
Other authors: Aydan Idrisova

The Influence of Varying Foreperiods on Accuracy and Reaction Time: A Replication Study

Attention is defined as the process of focusing on one stimulus while simultaneously ignoring others. In 1973, Posner, Summers, Klein, and Buggie investigated how a warning signal affects alertness and accuracy. We aimed to replicate their first experiment which provided evidence of speed-accuracy tradeoff and confirmed that rapid response times did not improve accuracy. Reaction time and error rate were measured through the manipulation of foreperiods, as well as compatible or incompatible response conditions. Seventeen subjects participated. The response condition was cued by the border around the screen. A warning signal was played prior to the presentation of the target stimulus. The subjects responded to the stimulus by pressing the key on the same side as the target, or the opposite side. Error rate was the smallest for shorter foreperiods but these reaction times were the longest therefore supporting the speed accuracy tradeoff found by Posner et al.

8. **Kiyana Kamali** – Dalhousie University  
Other authors: Smith, Rylan, O'Leary, M. Elizabeth, Myles, Elizabeth, Romkey, Isaac  
Supervisor: Perrot, Tara

The Effects of Probiotics on Maternal Care Behavior Quality and Consistency, and Subsequent Offspring Anxiety-Like Behaviours

Anxiety is one of the most prevalent psychological disorders. Recently, there has been an increased interest in the relationship between the gut microbiome and anxiety. Probiotics modify the gut microbiome and have several benefits such as decreasing anxiety behaviours in rodents and humans. However, our understanding of the effect of probiotics on maternal care and subsequent offspring anxiety-like behaviours is limited. The aim of this study was to examine the role of probiotics on both consistency and quality of maternal care in dams as these factors are involved in programming the stress response of offspring, affecting their anxiety-like behaviour in adulthood. We administered a probiotic formulation (Lacidofil, comprised of Lactobacillus helveticus R0052 and Lactobacillus rhamnosus R0011) to dams throughout pregnancy and lactation. Maternal care observations were conducted daily following birth for seven days. Anxiety-like behaviors in the open field test were assessed in offspring during adolescence. Our results indicated that the mothers in the probiotic condition showed significantly more arched back nursing, a trend toward increased licking and grooming, and significantly more consistent licking and grooming compared to dams in the placebo condition. However, there were no significant differences in anxiety-like behaviours of offspring between the two conditions. Together, these results demonstrate that probiotics given directly to dams have an influence on their maternal behaviors; however, this does not necessarily translate into modulating the stress response in healthy, non-stressed offspring, at least with respect to anxiety-like behaviour. These results further what we know about the relationship between probiotics and anxiety.
9. Alice Chen – Memorial University of Newfoundland  
Supervisor: Ploughman, Michelle; Rash, Josh

The Role of Depressive Symptoms on Changes in Cardiorespiratory Fitness and Cognition in People with Multiple Sclerosis

Cognitive impairment is a prevalent and debilitating symptom of multiple sclerosis (MS). With no effective pharmacological treatment in place, aerobic exercise training has been proposed as an alternative method of managing cognitive symptoms. Increased cardiorespiratory fitness has been associated with better cognitive performance in people with MS, particularly in cognitive processing speed. However, depression is a common comorbid of MS and is also associated with lower cognitive performance. As exercise has been shown to improve depressive symptoms in people with MS, this study was conducted to investigate a mediating effect of depressive symptoms on the relationship between long-term changes in cardiorespiratory fitness and processing speed. Thirty-one participants with MS attended two sessions that were one year apart. During each session, participants underwent tests of cardiorespiratory fitness (CRF; peak oxygen consumption), processing speed (Symbol Digit Modalities Test), and depressive symptoms (depression subscale of the Hospital Anxiety and Depression Scale). While CRF was not associated with processing speed, baseline depressive symptoms were negatively correlated with baseline processing speed and with change in CRF. Furthermore, depressive symptoms accounted for 16% of variance in processing speed. Although CRF and processing speed were not significantly correlated and there was no mediating effect of depressive symptoms, the alleviation of these symptoms could be associated with improvements in processing speed. As a result, treatment of depressive symptoms in MS should be considered as a method of managing cognitive impairment.

10. Steven Wilton – Acadia University  
Other authors: Hubley, Candice  
Supervisor: Hayes, Joseph

Motivational Conflict in Individuals with Low Self-Esteem: The Effect of Self-Affirmation Strength on the Trade-Off Between Anxiety and Depression

Although self-affirmation often increases well-being, it represents a source of motivational conflict for individuals with low self-esteem (LSEs). Previous research has not measured the moderating effect of affirmation strength on levels of approach motivation, anxiety, and depression among LSEs. The current research hypothesized that LSEs will affirm less strongly to avoid the elevated anxiety that comes with increased approach motivation and, in turn, suffer higher levels of depression. Participants (N = 909) were United States residents that participated online through MTurk. A measure of trait self-esteem was completed and participants were randomly assigned to either a self-affirmation or a control condition. They also completed a domain-specific measure of approach motivation, avoidance motivation, felt self-integrity, anxiety, and depression. While approximately half of the sample was asked to rate the strength of their affirmations, affirmation strength for the remaining half was measured using a qualitative coding scheme by two independent coders. Consistent with the hypothesis, LSEs refrain from engaging in strong self-affirmation, keeping approach motivation low, and thereby avoiding anxious motivational conflict in exchange for increased depression. Discussion is focused on the health implications of self-affirmation behavior among LSEs and its effect on goal orientation. Moreover, the mechanistic understanding that has been gained may lead to more focused therapeutic intervention with LSEs.
11. **Tony Kelly** – University of New Brunswick – Fredericton  
Supervisor: Dr. Barbara D’Entremont

The Association Between Job Satisfaction and Life Satisfaction in Adults with Autism Spectrum Disorder

Autistic adults have reported lower levels of life satisfaction compared to neurotypical samples (Schmidt et al., 2015). Lorenz et al. (2016) found job satisfaction to be a predictor of life satisfaction in autistic adults. However, Lorenz et al. (2016) did not account for individual factors such as social competence and communicative ability. This is important as social competence (Kuhlthau et al., 2010; Schmidt et al., 2015) and communicative ability (Tobin et al., 2014) have been posited as individual factors that may be associated with life satisfaction for autistic adults. Furthermore, findings suggest autistic women are less likely to maintain employment than autistic men (Taylor, Henninger, & Mailick, 2015) and the relationship between gender, job satisfaction and life satisfaction remains unexplored in this population. Hierarchical regression assessed if job satisfaction predicted life satisfaction beyond social competence, communicative ability, and sex and whether sex modifies the relationship between job satisfaction and life satisfaction. Step 1, including social competence, communicative ability, and sex, was not significant. Step 2, which added job satisfaction and the interaction between gender and job satisfaction, was significant. Job satisfaction was the only significant predictor of life satisfaction. The results of this study demonstrate that job satisfaction is an important predictor of life satisfaction above the influence of social competence, communicative ability, and sex in adults with ASD.

12. **Jocelyn Brown** – Dalhousie University  
Supervisor: Dr. Debra Gilin Oore

The Impact of Social Anxiety on Perceived Conflict-Handling Style in Negotiations

Individuals with social anxiety avoid social situations, fear social scrutiny, and worry about showing anxiety behaviours. Some research implies that these fears may not be irrational, as peers seem to identify social differences in these individuals. Dyadic conflicts, such as negotiations, represent common anxiety-provoking situations for these individuals. Using a negotiation task, the current study aimed to identify if an individual’s social anxiety influenced how they perceived their opponent’s conflict-handling style and how others perceived individual’s conflict-handling style. The author believed that individuals with social anxiety would see their partner as having low concern for them, leading to forcing or avoiding behaviours but not yielding or problem-solving. It was additionally hypothesized that the partners of individuals with social anxiety would see them as avoiding or yielding, not as forcing or problem-solving. The study investigated if self-, partner- and observer-reports differed, hypothesizing that self-reports would differ due to biases. Fifty-six dyads negotiated in a fictitious donation task, during which raters perceived their conflict-handling styles. Results indicate that no systematic differences existed between self- and partner-reports of conflict-handling style. Observer-reports differed, such that the partners viewed their opponent with social anxiety as more forcing than the observer. They also differed in that individuals whose partners had social anxiety saw themselves as more compromising than the observer. The differing perceptions of these two parties indicate that physical or situational behavioural differences exist which influence how others perceive individuals with social anxiety.
13. Natasha Levesque & Josée Richard – Université de Moncton  
Supervisor: Lachance-Grzela, Mylène., & Ross-Plourde, Mylène.  
Adolescents' Access to Psychological Services in New-Brunswick  

Only a minority of adolescents with mental health problems receive treatment (Reordon et al., 2017). Some adolescents may want to seek psychological support without informing their parents. In New Brunswick, the Medical Consent of Minors Act specifies that an individual may consent to receive treatment by themselves as of the age of 16. Exceptions may apply if the professional considers that the young person understands the implications of the treatment and that the treatment is in his or her best interest. Psychologists respect this law, failing to have a more precise one governing the consent to receive psychological treatments specifically. However, there is no empirical evidence as to whether psychologists apply the exceptions and, if so, how often and in what contexts. Anecdotal reports, particularly from students who have completed internships with psychologists in the province, suggest that psychologists tend to categorically apply the 16-year age limit without considering the exceptions. This practice may limit young people's access to professional psychological services. The purpose of this mixed-quote study is to document the interpretation and application of the law by psychologists in the province. This review will examine how psychologists in New-Brunswick handle the issue of access of minors to psychological treatments. Telephone interviews will be conducted with thirty-three psychologists working with adolescents.

14. Justin Vinet – Université de Moncton  
Supervisor: Denis Lajoie, PhD  
Effects of empowering leadership on employee well-being moderated by leader’s personality  

Empowering leadership is a style of leadership in which leaders improve their employees’ sense of autonomy at work by giving them additional responsibilities and the executive power required to fulfill those responsibilities in ways the employees see fit. This leadership practice has been associated with employee well-being. We suspected that the leader’s personality might influence the effectiveness of this leadership style. More specifically, we hypothesized that the relationship between empowering leadership and employee well-being is moderated by the leader’s agreeableness. To examine the question, 206 employees of various organisations answered a SurveyMonkey questionnaire in which measures of employee well-being, leader behaviors and leader personality were included. A moderation analysis revealed that the interaction between empowering leadership and leader agreeableness significantly affected employee well-being. These results suggest that agreeable people are more effective when using empowering leadership techniques than non-agreeable people.

15. Rylan Smith – Dalhousie University  
Other authors: Myles, Elizabeth; O’Leary, Elizabeth; Kamali, Kiyana; Perrot, Tara  
Supervisor: Tara Perrot  
Effects of Probiotics on Anxiety, Serotonin, and BDNF Levels  

Anxiety disorders have become increasingly prevalent over the past few decades and place a substantial burden on society. Previous research using animal models has suggested that probiotic supplementation may reduce anxiety. This study aimed to examine the effect of probiotic versus placebo supplementation to both rat
mothers and their offspring on offspring anxiety-like behaviours. Hippocampal BDNF levels and serotonin levels in the stomach in the offspring were also measured using ELISAs. Anxiety-like behaviours were measured in the offspring using the open-field test and a modified novel light-dark box protocol. First, it was hypothesized that rat offspring in the probiotic condition would show reduced levels of anxiety. It was further hypothesized that serotonin levels would increase in the probiotic group and that there would be a sex x treatment interaction for BDNF levels. It was concluded that the two conditions did not conclusively differ in anxiety levels on any of the tests. Unexpectedly, it was also found that BDNF levels were increased in the placebo condition and there was no effect of treatment on serotonin levels. These results are discussed within the context of experimental limitations and future research designed to assess how probiotic supplementation affects anxiety as well as BDNF and serotonin levels.

16. Lauren Squires – Memorial University of Newfoundland
Supervisors: Dr. Nick Harris & Dr. Jackie Hesson

Emotion Dysregulation as a Mediator Between Psychological Distress and Problem Smartphone Use

While smartphones can be beneficial by allowing us to easily perform daily tasks, some individuals may become so dependent on their smartphones that it affects their daily functioning. In such cases, individuals are said to be experiencing problem smartphone use. Those who experience increased psychological distress and experience difficulties regulating their emotions may be particularly vulnerable to developing problem smartphone use. The current study was an examination of the relationship between psychological distress and problem smartphone use, and the role of emotion dysregulation as a mediating variable. Participants were recruited through the Psychology Research Experience Pool (PREP) program at Memorial University of Newfoundland. Two hundred and four undergraduate students at Memorial University completed the Difficulties in Emotion Regulation Scale (DERS-18), the Depression Anxiety and Stress Scale (DASS-21), and the Smartphone Addiction Scale – Short Version (SAS-SV). A series of bivariate correlations indicated positive relationships between psychological distress, emotion dysregulation, and problem smartphone use. In addition, a bootstrapped mediation analysis indicated that emotion dysregulation is a significant partial mediator of the relationship between psychological distress and problem smartphone use. This study is the first to examine the mediating role of emotion dysregulation in the relationship between psychological distress and problem smartphone use using a holistic measure of emotion dysregulation (the DERS-18).

17. Sarah English – Mount Allison University
Supervisor: Dr. Nancy Garon

Risky Decision Making in Preschoolers

While the ability to account for the probability and expected value of an outcome when making a decision involving risk has been studied extensively in adult samples, few studies have assessed this ability in preschool-aged children. The current study explored the effect of frame, expected outcome value, and probability on risk taking during a Tricky Envelopes Task in three and four-year-olds ($M = 3.45$, $SD = 0.50$). Results revealed a significant effect of order by frame, such that children took more risks when presented with the gain domain first, and a significant effect of risk by frame, such that children took more risks in the loss domain compared to the gain domain. Further, a significant effect of probability was found, for which children took more risks when the probability of obtaining the expected outcome was greater. Understanding how decision making develops in young children is important as it may influence future academic and social success, the formation and maintenance of interpersonal relationships, and overall morality.
Mismatch Negativity (MMN)-Indexed Auditory Change Detection Deficits In Major Depressive Disorder

Depression is one of the most commonly occurring mental illnesses today. It is known that depression causes cognitive deficits in areas like memory and attention, both behaviourally and as measured by EEG-derived event related potentials (ERPs). The mismatch negativity (MMN) is an ERP that represents auditory change detection and is thought to be a marker of central auditory function; the MMN has been shown to be affected in clinical populations, including depression. While some studies report a decrease in amplitudes of the MMN in people with depression, others have shown an increase in amplitude. The primary objective of this project was to examine the MMN across a wide range of deviant types in order to profile changes in depression. Participants were people diagnosed with major depressive disorder (MDD; n = 12) and healthy controls (HC; n = 13). MMN amplitudes and frequencies were derived from EEG recordings and elicited by an ‘optimal’ multi-feature paradigm with five deviant types. We report reduced MMN amplitudes in MDD participants for gap deviants (p < .05). Overall, our findings suggest that deficits in auditory change detection are present in depression, however may be dependent on the deviant being examined.

Examining the Effects of Laptop Screen Content on Peers’ Lecture Recall

While effects of laptop use on distraction and performance have been well documented for the user, the effects on surrounding peers in the class have been less conclusive. Phillips et al. (2016) found movement saliency of the stimulus on a distractor laptop did not influence recall test scores. The current study aims to replicate the findings by Phillips et al. (2016) as well as introduce a new variable of interest level to see if it would have an effect on its own or with movement saliency. By using a 2X2 factorial design we compared recall test scores and self-reported distraction across different movement saliencies and interest levels. Results showed no differences in lecture recall across movement saliency or interest level as well as no interaction between the two. In accordance with previous findings, there was a significant negative correlation between recall scores and self-reported distraction levels. These findings add to the evidence suggesting the presence of a peer’s laptop in class does not affect lecture recall, but does produce higher self-reported distraction in students. Additionally, it provides evidence to say that the content of the laptop screen itself does not matter when it comes to distraction.
20. **Graham Hood** – Dalhousie University  
Supervisor: Dr. Tim Juckes & Dr. Sean Mackinnon

Heterosexual University-aged Students’ Perceptions of Rape and Consent in Male-on-Female Sexual Assault Vignettes

Sexual assault is a serious health issue. Past research has studied misconceptions (Rape myths) on sexual assault using single statements to represent these misconceptions. Our research sought to improve measures by creating vignettes that provide more information and context. Our vignettes, based on the Updated Illinois Rape Myth Acceptance Scale-Short Form (uIRMA-SF) five subscales (e.g., “She Lied”), provide complex, multi-sentence descriptions that better capture participants’ support of rape myths and their understanding of sexual consent. Participants completed the uIRMA-SF then completed 10 vignettes and follow-up questions; we compared the vignette responses of heterosexual students’ (N =159; 85.5% female; age (years) M = 19.37, SD = 1.57; year of study M = 1.98, SD =1.17) to the uIRMA-SF. The five mean vignette subscale scores were all significantly lower than the uIRMA-SF mean scores, with Cohen’s d values ranging from 0.37 to 1.10. All five uIRMA-SF mean subscales scores for males were higher than females, with Cohen’s d values ranging from 0.27 to 1.13; however, there were no significant differences between genders for the mean vignette subscale scores with Cohen’s d values ranging from 0.03 to 0.37. Males and females tended to state that the male was culpable (77%), males’ lack of restrain was responsible (41%), and the incident should be reported (60%). Despite their many limitations, the vignettes showed substantive value, providing a more sophisticated approach to the study of attitudes on consent and acceptance of sexual assault. The vignettes indicate a potential future application for education and intervention programs.

21. **Lucas Walters** – Memorial University of Newfoundland  
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Supervisor: Dr. Josh Rash

I got it from my Mama: Exploring the Relationship Between Maternal Psychological Distress and Child Adaptive Skills as Moderated by Fetal Sex and Mediated by Maternal Cortisol

Few studies adopt positive psychology in understanding how maternal conditions alter the developmental trajectory of the fetus (i.e., fetal programming) and predict the development of offspring adaptive skills (those needed to effectively perform every day functions and engage in social relationships). Prenatal maternal cortisol has a developmental organizational effect on the fetus in utero. Male and female fetuses respond differently to signals from the maternal environment, including cortisol. One hundred and fifty-eight Albertan women completed maternal self-reports of psychological distress (EPDS, PSA, POMS) and collected saliva that was assayed for cortisol during early and late pregnancy. Mothers completed the BASC to assess child adaptive skills when children were approximately four years of age. Data were analyzed using the Hayes PROCESS macro per. A significant maternal psychological distress by fetal sex interaction on child adaptive function, $b = -12$, $t(151) = -2.9$, $SE = 3.9$, $p < .01$ during early pregnancy was found, as well as a direct association between cortisol and child adaptable function, $b = -12$, $t(151) = -2.2$, $SE = .05$, $p < .05$. No evidence was observed for the mediating role of cortisol during early pregnancy. For late pregnancy, no interaction was observed on child adaptive function, $b = -4.4$, $t(151) = -1.1$, $SE = 4.0$, $p = .27$; however, cortisol was a predictor of adaptable function, $b = -.12$, $t(151) = -2.5$, $SE = .05$, $p < .015$. These results expand current understandings of how maternal distress and stress response systems affect fetal programming.