**Portraits of Post-Traumatic Stress Disorder in Adolescent Fantasy Fiction**

Approximately 16% of children and adolescents who experience trauma will develop post-traumatic stress disorder (PTSD). Mounting evidence shows PTSD to have both acute and chronic effects on childhood development making treatment essential. Unfortunately, fear of stigma continues to prevent Canadian’s from reaching out for mental health care. The negative attitudes that lead to stigma develop in childhood and adolescents, yet media available to children often reinforces negative stereotypes of mental illness. Studies have shown that fiction can create empathy and pro-social behavior in the reader, thereby reducing stigma. Several fantasy-fiction series’ have chosen to portray PTSD. By encouraging Theory of Mind and transportation while discouraging imaginative resistance, these narratives have created ideal conditions for readers to feel empathy towards people living with PTSD, thus reducing stigma in the real world.

**Specialized Pro-Resolving Mediators Actively Cause the Resolution of Inflammation**

Due to the inflammatory nature of many diseases, such as cancer, arthritis, and Alzheimer’s, understanding the resolution of inflammation is imperative for future clinical treatments. Recently, with the discovery of a new class of specialized pro-resolving mediators (SPMs), the resolution of inflammation was observed to be complex and actively controlled, rather than a simple passive diffusion and degradation of pro-inflammatory signals. SPMs are molecules which limit the movement of neutrophils into an inflamed tissue, inhibit the production of pro-inflammatory molecules, and/or cause phagocytosis by macrophages of neutrophils programmed to die. While the physiological responses caused by SPMs are becoming better understood, the cellular signals which cause a switch from pro-inflammatory to pro-resolution require more investigation. Resolvin D1 (RvD1), an SPM, has been shown to cause this switch by regulating the transcription of enzymes from the cyclooxygenase (COX) pathway through the control of transcriptional factors. I propose to use quantitative PCR and western blotting to determine the role of RvD1 in regulating transcript and protein levels of the downstream pro-resolving enzymes of the COX pathway. Based on these results, I will determine the mechanism by which RvD1 acts. Understanding the onset of inflammatory resolution is an important step to producing a pro-resolution therapy for chronic inflammatory diseases.

**The Mediated Effects of Living Within and Without News Media**

News media offers new possibilities for being, both in how we communicate and perceive reality. Specifically, news media changes our perception of distance and intimacy through an instantaneous connection to social problems around the world. The mass-mediated experience of compassion for victims we have never met and stories that hold no parallels to our own gives us a glimpse into how the media shapes emotion. Given the constant availability of news media, scholars express a sense of anxiety that the ever-changing media landscape will paradoxically disconnect individuals and exhaust compassion for distant suffering. The goal of this study was to explore how students grapple with the experience of compassion fatigue. In this study, I conducted in-depth interviews with two students enrolled in a media course at the Augustana campus. I examined how students described a 24-hour media fast that was a required component of the media course. In my paper, I explain how students express their lived experiences and the role that imagination plays in mediating emotional responses to living within and without news media. In addition, I will also discuss how students’ make sense of the moral and ethical abstractions that are related to how trauma and tragedies are depicted in news media.

**In Medias Res Cost-Benefit Analysis of Alberta Carbon Levy: The First Four Years**

This paper performed a cost-benefit analysis on Alberta’s newly-implemented carbon tax. Using Statistics Canada’s Social Policy Simulation Data and Model and government estimates, cost and benefit values were discounted to assess the net present value of the levy over the next four years. While two other alternative policies were identified, they were not explored in this paper due to the lack of data available. One of those alternatives, carbon capturing, was dismissed on the grounds that it is not a forward-thinking approach to solving environmental issues. The other, cap-and-trade, could be a viable option although it faces higher implementation costs. It was found that the levy will provide net benefits of $475 million dollars to Albertans over the first four years, and is thus a viable policy. The viability of the carbon levy, however, is highly dependent on the accuracy of the estimates provided. It is possible that the net present value of this policy will actually be negative, if costs have been underestimated or if emissions reductions have been overestimated. It follows logically that further analysis will be required at the end of the first four years to determine whether or not the levy should continue to be implemented in the future. Thesis: Alberta’s new carbon levy will provide net benefits of $475 million dollars to Albertans over the first four years, and is thus a viable policy. The viability of the carbon levy, however, is highly dependent on the accuracy of the estimates provided. Keywords: carbon, emissions, greenhouse gas, economy, cost-benefit analysis, policy, tax, levy, externality, Alberta, provincial, pricing, environment, carbon dioxide, Canada, green, alternatives, fiscal
Panel 1:

Seth Hawkins

Jennifer Laskosky

Duncan McDougall

Justin Tiedmann

Dr. Roxanne Harde

AUENG 411

Financial Status and Ideal Masculinity: How Class and Finance Affect the Portrayal of the Male Body and Masculinity in Children’s Short Stories and Novels

My presentation will deal with the young male characters in mid to late nineteenth century novels and short stories and the correlation between the masculinity of the characters, muscular Christianity and their class status; with a rise in the masculinity of the boys, there is also a rise in their class.

Entrenching Acts of Benevolence in 19th Century Stories for Girls

I will be examining Eleanor H. Porter’s Pollyanna, Elizabeth Stuart Phelps’s “Twelve Yards of Roses,” Eleanor Putnam’s Fanchon’s German” and Margaret Warde’s “The Freshman Freak,” in which benevolence is portrayed as having multiple influences, but the underlying connection is that benevolence, from the upper-class, emphasizes class entrenchment. Benevolence is meant to be a charitable act that involves genuine kindness, however, in the late 19th century benevolence became a means of distancing one’s self from the lower classes and using them as a tool for redemption.

The Price of the American Dream: A Study of the Other in the Horatio Alger Myth

The political unconscious of the Horatio Alger Myth is best explored by examining othered characters within Alger’s writing. I examine The Erie Train Boy and divulge the myth’s ability to transcend its own narrative and move fluently into horizons shared by other 19th century writers. These writers do not purposefully share opinions with Alger. Rather, they connect themselves via a shared political unconscious.

Preserving Class Separation: How the Social Gospel of Nineteenth-Century American Boys’ Stories is Haunted by the Prosperity Gospel

I will examine the roles that the Social and Prosperity Gospels play in nineteenth-century American texts, and how the descriptions of the characters and the actions taken by them widen the gap between the social classes. While the Social Gospel promotes equality, the Prosperity Gospel lauds financial and social successes as signs of righteousness, keeping the classes separated from each other.

Panel 2:

Jennifer Rozema

Hanna Senft

Dani VanDusen

Callum Wilson

Dr. Roxanne Harde

AUENG 411

Food and the Female Body in 19th Century Stories for Girls

Reforming Womanhood: Appearances of the New Woman in the Works of Louisa May Alcott and Elizabeth Stuart Phelps

The appearances of the New Woman in the novel An Old-Fashioned Girl by Louisa May Alcott and the short story “Our Little Woman” by Elizabeth Stuart Phelps respond to Victorian America’s ideas of womanhood. In this paper, I use Jacques Derrida’s concept of the “specter” from Specters of Marx to argue that these authors use the appearances of the New Woman to reform young women’s ideas of womanhood.

Inscribing the Female Body: Fashion and Culture in late 19th Century Victorian America

My research analyzes the role of fashion and self-presentation in 19th century texts such as An Old-Fashioned Girl and “Grandmama’s Pearls” by Louisa May Alcott. I am interested in how the female body becomes inscribed with the culture of the time, and I also explore the dichotomy between the old and the new fashion. I utilize a feminist approach and supplement my research with 19th century periodicals such as Godey’s Lady’s Book and The Ladies’ Home Journal. I focus on the insidious nature of the new fashion that is disseminated relentlessly throughout 19th century Victorian American culture, and investigate how Alcott and Phelps present alternative narratives for young women navigating the imposition of fashion, self-presentation, and culture.

Resisting and Affirming Marx in Phelps and Porter

By using the literary theories of Jacques Derrida presented in his Specters of Marx to interrogate the works of late nineteenth and early twentieth century works for children, it is found that “Lilies in Prison” by Elizabeth Stuart Phelps and Pollyanna by Eleanor Porter exist as texts meant to reform capitalist society. The point was not to destroy the status quo completely but to allow room for better treatment of the people othered by society through equitable treatment of them.
### Getting it Done: Evaluating Community-Based Programs in the City of Camrose

Across Canada and the United States, a wide-range of community-based child programs (CBCP) have been developed and implemented for children of all ages with different developmental and behavioural needs. Despite the fact that these programs exist, children still “fall through the cracks” and may not achieve the intended goals of a program (Diamond & Powell, 2016). Therefore, research is now being conducted to address how to bridge the gap between what programs look like on paper and what they are actually doing in practice. The purpose of this study is to determine what the perceived barriers and facilitators are to fostering positive outcomes amongst those who take part in these programs using the fidelity framework (Dunst, Trivette, & Raab, 2013). Data will be collected by conducting one-on-one interviews with 15 different program directors and/or support staff associated with CBCP’s in Camrose. Descriptive statistics and qualitative methods will be used to determine any common themes emerging in the data regarding what the perceived facilitators and barriers to a CBCP’s success are.

### Premenstrual Dysphoric Disorder: Women’s Experiences with Healthcare Professionals

It is estimated that 3% to 8% of women suffer from Premenstrual Dysphoric Disorder (PMDD) during their reproductive years (di Scalea & Pearlstein, 2017; Rapkin & Winer, 2009; Hardy & Silience, 2016). Women with PMDD experience severe, debilitating symptoms during the late luteal phase of their menstrual cycle, including, irritability, anxiety, anger, bloating, feeling out of control, and depressive symptoms (di Scalea & Pearlstein, 2017). These symptoms affect interpersonal relationships, as well as work productivity to a crippling degree. Unfortunately, there are not many studies that explore the lived experiences of women with PMDD and their involvement with healthcare professionals. Therefore, the purpose of this study is to examine the lived experiences that women with PMDD have with their healthcare professionals during the diagnosis and treatment phase. This study will use a qualitative methodology. An online questionnaire will be developed, based on the literature, to guide the questions included on the questionnaire. 40 participants will be recruited through the internet. For internet sampling, notices of the study will be posted to general survey websites, PMDD-related organization websites (i.e., Gia Allemand Foundation), online support groups and message boards that target women with PMDD. Interested participants will be encouraged to click on the link to complete the questionnaire online. Data collected will then be analyzed and coded. Questionnaire data will be analyzed using Strauss and Corbin’s (1990) grounded theory. Data will be managed with NVivo 11 software.

### Examining a Norms Based Intervention for Improving Sexual Health in University Students

Sexual health involves both the positive and negative aspects of interpersonal intimacy and sexuality. In promoting sexual health, there is emphasis on both reducing interpersonal risks/harms (e.g., avoiding sexually transmitted infections, relational violence) and in promoting healthy behavioral practices (e.g., communication and consent seeking, use of prophylactics). One understudied topic in this area of research is examining how perceptions of social/peer norms affect personal sexual health practices. Social norm theory suggests that people may have a tendency to misperceive the behaviour of their peers, especially for intimate or private behaviors, such as sexuality, not discussed widely in public spheres. These misperceptions then influence behavioural intentions to engage in healthy sexual practices. Importantly, this theoretical framework also suggests a straightforward way to change misperceptions is by providing people with more accurate information about population norms. In the present study, a university student sample will be asked to report both perceived sexuality norms and their personal sexual health practices. For half of the participants, they will provide these reports before receiving population norm information, while the remaining participants will answer the same questions after reading norm information. It is expected that perceived norms will predict sexual health practices and that exposure to normative information will reduce misperceptions and encourage healthier perceptions. Implications of this study for the understanding of sexual health promotion will be discussed.

### A Study of Factors Influencing Cognitive Processes

Have you ever wondered how certain stimuli impact your cognition? Each day, individuals interact with their surrounding environment and are exposed to a wide range of stimuli. Due to our limited attention span, we are unable to consciously recognize each and every stimulus, as we would be overloaded with information. This would prevent us from focusing our abilities to complete a task. Therefore, much of the stimuli we interact with goes unnoticed and these unconscious processes have a great influence on our overall cognitive abilities. The proposed study will investigate the effects of environmental stimuli on various cognitive abilities. During the presentation, we will take an evolutionary approach to help understand some of the impacts of stimuli on cognition. Previous research and our current study design will be discussed in further detail.

### BREAK - Poster Display in Forum

7:30 - 8:00pm
Targeting Human GCase with Specific Self-Immolative Linkers

Carbohydrates can be bound to a number of molecules through glycosidic bonds, which can be broken by a specific type of enzymes called glycosidases. There are several types of glycosidases found in the human body, particularly beta-glucosidases, which cleave beta-linked glucose residues from substrate specific molecules. One type of beta-glucosidase is named glucocerebrosidase (GCase), they are associated with the breakdown of glucosylceramide (GlcCer). Mutations that affect the coding for this enzyme can lead to diseases such as Gaucher’s and Parkinson’s disease. We are interested in creating a synthetic substrate for GCase to monitor enzyme activity, which can aid in the monitoring of both disease progression and treatment. Positron emission tomography (PET) scans and fluorimetry can be used for monitoring by attaching a reporter molecule, such as a radionuclide or fluorophore, to the end of the GCase specific substrate. A self-immolative linker (SIL) could be used to make GCase specific substrates by increasing the distance between the reporter and the glycosidic bond, minimizing interference at the enzyme active site. In this presentation, a synthetic route of the synthesis of a substrate containing a SIL will be proposed and how the release of a reporter molecule indicates GCase activity.

Improving Catalysis Through Flow Chemistry

One of the latest advancements in catalysis is the development of the flow reactor. In these reactors the substrate solution is pumped directly through the catalyst allowing for maximum contact with the catalytic active sites. In addition, flow reactors allow for many reaction parameters to be easily controlled and manipulated, often resulting in increased catalytic efficiency and rapid reaction optimization. As a result of these advancements, many catalytic processes are being re-evaluated in an attempt to improve reaction parameters and efficiency. This presentation will focus on our recent study of palladium catalyzed allylic alcohol isomerization and hydrogenation under flow conditions.

Designing Synthetic Building Blocks for Catalytic Metal-Organic Frameworks

Catalysis is one of the 12 principles of green chemistry and is a valuable synthetic technique used in many different chemical industries. Recently, metal-organic frameworks (MOFs) exhibiting catalytic behaviour have been developed and utilized in a variety of industrially relevant chemical reactions. MOFs, in general, are ideally suited for catalytic applications due to their pore structure and relative stability. In the McGinitie research group we have been designing and synthesizing a new ligand that can be used as a synthetic building block for the development of catalytic MOFs. This presentation will discuss our recent progress in this endeavor and future directions that we wish to pursue.

Brief history of Niels Bohr & proving his atomic model

Niels Bohr is highly regarded as one of the most notable physicists of the past 200 years. In 1913 he won the Nobel prize in physics for his theory of the hydrogen atom and its quantum nature. This presentation will explore Bohr’s seminal work to understand the hydrogen atom, and the phenomenon that supports his theory. The model Bohr theorized can be experimentally explored through use of spectroscopy and the Balmer formula, which, existed much before it was fully understood. Bohr’s theory explained the works of Balmer through the consideration of discrete energy levels of the electron. This presentation will focus on the experiment I designed, the theory behind the experiment, and how my results support the Bohr model.

Subatomic particles and a homemade cloud chamber

High-energy subatomic particles are constantly moving through our surroundings, having originated in the ground, the atmosphere, the Sun, and beyond. We will give an overview of the sources of these particles and their practical applications. Then, we will provide an opportunity to observe these particles using a cloud chamber that we have built.
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<th>Speaker</th>
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<tr>
<td>Hannan Mohamud</td>
<td>The Resilience of Richmond’s Nationalism during the American Civil War</td>
<td>Richmond, Virginia is a beautiful city set in the hills and above the James River emanating a picturesque view, but this stunning city was nearly captured during the American Civil War. Richmond was the capital city of the Confederates States of America for the majority of the war and was only one hundred miles from the Union capital thus, the city was the main target. Throughout the war, the people of Richmond displayed strength and powerful nationalism even when the Union forces were within miles from seizing the city. Despite the many hardships which Richmond faced, the city remained hopeful with the certainty of their eventual victory. Without the continued hope, the capital city of the Confederacy would have been captured early into the war, potentially changing the entire course of the civil war.</td>
<td>6:30 - 6:55pm</td>
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<td>Emily Grose</td>
<td>Cost Benefit Analysis of Changes to Alberta’s Time Zone</td>
<td>The Government of Alberta proposed to review the potential adjustment to eliminate the Daylight Savings Time zone change in Alberta. This research will undertake a cost benefit analysis (i.e. economic analysis) of the Alberta government deciding to possibly scrap the use of the Daylight Savings Time through a bill in the assembly named Bill 203. If passed, Bill 203 would repeal the Daylight Saving Time Act and require the observance of “Alberta Standard Time” (defined as six hours behind coordinated universal time) year round. The cost benefit analysis is a decision making tool that allows comparison of a diverse range of benefits and costs arising from a new policy or project by first quantifying them and then seeking to identify monetary values for each stream of benefits and costs. This cost benefit analysis will look at the costs and benefits to the wider community and businesses, such that this will help determine the government’s decision on eliminating Daylight Savings Time.</td>
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<td>TJ Jegde, Patrick Mate &amp; Danisha Suchak</td>
<td>Does Sex Impact Blood Glucose Response to Exercise in Type 1 Diabetes?</td>
<td>Exercise has been shown to be very beneficial for individuals with type 1 diabetes (T1D), however, fear of low blood glucose (BG) remains a major barrier to exercise in this population. Managing BG levels during and after exercise is difficult for individuals with T1D as the research on which current blood glucose management recommendations are based fail to take into account physiological differences such as sex, age, and fitness level. In individuals without T1D, sex-related differences in metabolic and neuroendocrine response to exercise have been well established. Men and women differ in fuel selection and hormonal (including catecholamine, growth hormone, and estrogen) response to different types and intensities of exercise. In general, men rely to a greater extent on carbohydrates (glucose) for fuel production and have an amplified hormonal responses to exercise compared to women. Conversely, women favor lipid (fat) oxidation and deplete less of their glycogen stores than men during exercise, indicating that women may have fewer difficulties maintaining blood glucose levels during and after exercise than men. However, little is known about sex-related differences in individuals with T1D. A single study investigating sex-related differences in response to moderate aerobic exercise in T1D found that sex-related differences in fuel selection and catecholamine response exist, however, changes in BG were not measured. To our knowledge, no research exists on sex-related differences in BG response to exercise in T1D individuals. This talk summarizes the current knowledge surrounding sex-related differences in response to exercise that could potentially impact BG during and after exercise in individuals with T1D.</td>
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<td>Nicole Brockman</td>
<td>Cardiovascular Disease and Exercise Training Approaches in Cardiac Rehabilitation</td>
<td>This review of literature examines three types of cardiovascular disease: Coronary artery disease, myocardial infarction, and heart transplantation and how these conditions are managed in a cardiac rehabilitation program. This review focuses on the characteristics of each condition, identifies various exercise training approaches which include aerobic, resistance, high-intensity interval training, tai-chi, and yoga, as well as some future directions in research. The purpose of this review was to investigate the effects of each exercise type on the chosen conditions, evaluate which exercise type was most and least prominent in the literature, and apply these findings in a practical setting at the Glenrose Rehabilitation Hospital.</td>
<td>8:30 - 8:55pm</td>
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### Outcomes of personal interpretation for visitors in Alberta’s provincial parks.

Personal interpretation seeks to enhance visitor enjoyment, improve knowledge, promote positive attitudes, and increase environmentally-friendly behaviors. However, there is little information on what factors contribute to these outcomes. This project will examine the changes in visitor enjoyment, knowledge, attitudes, and behaviors, along with the factors affecting those changes. We conducted 24 semi-structured interviews with visitors at three Provincial Parks in the late summer of 2017. Respondents indicated achievement of visitor satisfaction (key factors: entertainment and education) and knowledge gain (factor: variety of learning strategies) but were less certain about attitude changes (factor: education) and behavioral intentions (factors: education and positive experience). These results will help interpretation practitioners plan, deliver, and evaluate programs for achieving desired outcomes in an efficient and targeted manner.

### Insights from an Alberta Parks Communicator Student Placement

Ever wonder what it’s like to work for Alberta Parks? Come learn about my experience this summer working as a communicator at Miquelon Lake Provincial Park. Park communicators foster environmental stewardship through fun and engaging interactions with visitors. By providing positive and memorable experiences, both children and adults can develop a newfound sense of awareness for our natural environment. Not only do park communicators get to understand how their own park operates, but also get to travel to other provincial parks to explore Alberta’s landscape, biological, and cultural diversity. From environmental education programs to large-scale amphitheater shows park communicators participate in a full range of interpretive experiences.

### Social Behavioural Traits in Mongolian Gerbils (Meriones unguiculatus)

Mongolian gerbils (Meriones unguiculatus) have increased in popularity as laboratory animals in the past fifty years due to their small size and low maintenance. They are frequently used in stroke, epilepsy, and parasitology research as well as for radiation and hormone effects. Despite the growing interest in using Mongolian gerbils as a research model, they have not yet been utilized in animal personality research. An animal personality trait is the phenomenon of a behavioural trait that varies within a species and is stable over time and context. One such aspect of animal personality that has been studied in a wide range of animals is social behaviours, including aggressiveness, tolerance, territoriality and dominance. I propose a study that will explore Mongolian gerbils’ displays of individual variation in dominance behaviours to determine the consistency of the trait over time and contexts. I will examine the social behaviours of a triad of gerbils in their home habitat, and compare the results to their behaviours in pairs in a novel setting for behavioural consistency or flexibility. Similarly, I will compare dominance behaviours collected in February 2016 with new data that will be collected in February 2017 to determine the effects of time on this behavioural trait.

### Consistency of exploratory behaviour in Mongolian gerbils over a large temporal period and across contexts.

A social rodent of China, Mongolia, and Russia, Mongolian gerbils (Meriones unguiculatus) have been used as a laboratory model for social behaviour and biomedical sciences for several decades. Animal personality is a popular, and relatively modern, field of behavioural ecology. Personality refers to stable individual differences in animal behaviour across contextual and temporal scales, and often has important ecological and evolutionary implications. Commonly studied behaviours include boldness, aggressiveness, and exploration. Although exploratory behaviour has been studied extensively in other species, limited research has been conducted regarding Mongolian gerbil exploration. My study will aim to assess consistency of exploratory behaviour across temporal and contextual scales through the use of a hole-test and a novel environment test. Results of my hole test will be compared to previously collected data from a hole test to determine temporal consistency of exploratory behaviour, and I will compare exploratory scores of my hole-test and novel environment test to determine contextual consistency. Additionally, I will analyze results to assess if a behavioural syndrome, or rather, suites of correlated behaviours across time and contexts, exists for Mongolian gerbil exploratory behaviour.
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<td>Annika Olesen &amp; Kaylee Pylypow</td>
<td>Empowering minority groups At our CSL placements with Special Olympics Camrose and the Open Door, we have both worked with minority groups, often including individuals with mental and/or physical challenges. During our work we have formed relationships with these individuals and the staff of the organizations. Our insights have included a better understanding of behind-the-scenes workings of these similar organizations, an appreciation for the importance of trust and human connection, and an awareness of the broader implications that something simple like sport or even a game of cards can have on another's life. The individuals we have worked with in our placements have experienced both positive progress and setbacks but regardless of the results, we understand that it is important to empower groups that are often marginalized because of their status as a minority group.</td>
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<td>Jessa Gualter &amp; Alexander Olson &amp; Benjamin Schmidt &amp; Jennifer Pospolita, Hailey Smith &amp; Emily McIlroy</td>
<td>Defying the paradigm of the four walls: Active vs. Passive Learning Learning involves different strategies in the university context. Active and Passive learning are terms coined to describe levels of student participation in the classroom. Studies surrounding these learning strategies have shown that they affect the students and the professors who use these types of learning. We will evaluate the challenges and discuss potential solutions in implementing this learning strategy within an educational establishment. We will explore the value and challenges from our own experience with active learning and particularly team based learning (a type of active learning). Our experience with active learning is unique because we have used this strategy as students and we have helped other students use it as part of our CSL 360 Placement.</td>
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<td>Thomas Anglin, Kelsey Sibanda &amp; Benjamin Schmidt</td>
<td>Learning to Learn: Navigating Student Resistance to Team-Based Learning Team-based learning (TBL) is an active learning style that has become increasingly popular as a pedagogical tool for in-first year university classes. Observational studies have shown that although team-based learning TBL appears to be conducive to learning, students display apprehension towards TBL, which may result in resistance from professors to integrate TBL as a teaching tool. Student resistance appears to stem from a variety of factors, but studies have shown that there are techniques to help navigate resistance. In our presentation, we will examine both the common causes and types of resistance, and how they can be addressed in the classroom.</td>
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<td>Rebecca Pospolita, Hailey Smith &amp; Emily McIlroy</td>
<td>Empowerment Through Literacy Through this presentation we will be reflecting on our experiences volunteering with different community-based programs in Camrose that focus on children's literacy. The ultimate goal of these programs are to get children reading, through making reading fun, giving children the skills they need to be able to read and write on their own, and supporting their growing self-confidence. Sahakarini aims to meet this goal by giving all children part of the Pipal Tree Children's College access to books. The Alberta Health Community Rehabilitation Centre, on the other hand, has developed two different reading programs for children to help build and strengthen their reading and writing skills. All of these programs will help to provide children with a sense of empowerment through literacy.</td>
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<td>Kaylynn Yaremko, Lane Anderson &amp; Jennifer Laskosky</td>
<td>Pros and Cons of Freedom Sometimes, freedom in the workplace can encourage people to open up, explore new horizons, let their creativity flow, and allow their passion to be pursued. However, freedom can lead to complications with authority and a lack of structure can make it difficult to complete tasks. In each of our placements, we were given projects that asked us to gather, organize, and present information to the public. These projects were given to us with flexible instructions, which allowed us to decide for ourselves what information was important or interesting and what should be excluded. Initially, this type of freedom leaves the impression of a project that will run smoothly due to the large amount of personal control. While in some ways this was true, we faced difficulties being placed in a new environment where we were asked to present information about the organization, but we were simultaneously trying to learn this information for ourselves. This presentation will describe the barriers we faced and how we overcame those barriers to create a final project that contained useful and relevant information, and what we learned through this experience.</td>
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**BREAK - Poster Display in Forum** 7:30 - 8:00pm
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<td><strong>Natalia McGill &amp; Sammy Lowe</strong>&lt;br&gt;Professor Paul “Sparky” Johnson&lt;br&gt;AUDRA 301&lt;br&gt;AUIDS 391</td>
<td>And All the World’s A…Classroom?!’ : Applications of Theatre in Pedagogy and Learning Practices&lt;br&gt;With its many facets and areas of expression, theatre is a truly diverse discipline that allows for the expression of ideas and telling of stories in many different forms. Whether these ideas and story are being told through dramatic text, expressive dance, inspired physicalizations, or other forms of stagecraft, they allow for a self-generated and often truly collaborative process to take shape. However, theatre possesses many applications beyond the stage and dramatic context. By utilizing a wide array of exercises, games and other practices, theatrical techniques are able to accommodate the wide breadth of subject matter and curriculum needs present in education, as well as the various learning styles of students within the education system. Our presentation will take the form of a workshop centered on the ideas of theatre for, theatre by, and theatre with. We invite you to actively participate with us as we explore the controversial topics of bullying and LGBTQ+ inclusion in a manner designed to be safe, informative, and engaging in a classroom setting.</td>
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<td><strong>Sammy Lowe</strong>&lt;br&gt;Professor Kevin Sutley&lt;br&gt;AUCRA 301</td>
<td>When Worlds Collide: Integrating Drama and Science into a Movement-Based Reflection of the Self&lt;br&gt;Theatre, by its very definition, is a multi-faceted discipline that allows for many different forms of expression, identity and connection to take shape. Similarly, a liberal arts education allows us to experience a plethora of new ideas from a diverse array of disciplines, with the ultimate goal of shaping us into well-rounded and unique individuals. Now that my time at Augustana is coming to an end, it is evident that my experiences with both the Arts and Sciences have had a profound impact on the person I am today. By combining drama techniques (such as movement and physical theatre, recontextualization, dance, voice and music, and performer-generated theatre) with key concepts from biology courses that have strongly resonated with me (such as Microbiology, Pathogenesis, and Immunology), I have created and directed a movement-based piece encompassing my knowledge of and passion for both disciplines. I humbly invite you to share in the culmination of my journey at Augustana, and bear witness as I present myself vulnerable and onstage: ions, interpretive dance, and all.</td>
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What factors affect the remyelination in patients with MS?
In patients with Multiple Sclerosis (MS), the process of remyelination is crucial. Therefore, it is important that the factors hindering remyelination from occurring are researched and knowledge of them expanded. The factors of inflammation, age, oligodendrocyte precursor cells (OPCs) and chronic versus active lesions all play a key role in affecting the remyelination of axons in MS patients. Inflammation plays a role in increasing the demyelination of axons, while age causes the remyelination process to be drastically slower and effects the OPCs involvement in remyelination. The two major factors that lead to remyelination through OPCs is recruitment and differentiation. In failure of differentiation, OPCs and immature oligodendrocytes do not differentiate into myelin sheath forming oligodendrocytes. In the failure of recruitment, OPCs are not sent to become remyelinating oligodendrocytes. If either stage fails in some way, that creates a major fallback, therefore contributing to clinical deterioration. With MS, lesions occur where demyelination has taken place. Active lesions lead to abnormalities of oligodendrocytes whereas chronic lesions are damages to the axons. In this review, we will explore each of these factors as they contribute to or inhibit the remyelination of axons within MS patients, taking into account the various patterns of MS that have been observed.

The role of protein in ferritin iron regulation and hemoglobin production.
Our exploration will highlight the importance of the polypeptide binding protein (PCBP1) and nuclear coactivator 4 (NCOA4) in iron regulation, and homeostasis. The ferritin chaperone-PCBP1 acts alongside NCOA4 - a cargo receptor-in coordinating transport of ferritin and uptake. PCBP1 mediates the delivery of iron into the iron storage protein-ferritin-through protein-protein interactions. NCOA4 then attaches to the ferritin iron and transports it to the lysosomes, where autophagy degrades the iron-ferritin bonds and iron is released. Moreover, these regulatory processes are mediated by cellular iron levels. The processes of PCBP1 are inhibited when the cellular iron levels are in excess because it can not bind to the ferritin. When iron levels are depleted PCBP1 binding to ferritin is enhanced. In the presence of elevated iron levels E3 ubiquitin ligase (HERC2) dependent degradation of NCOA4 occurs. NCOA4 deficiency then leads to iron accumulation and development of diseases such as microcytic hypochromic anemia. Mutations or deficiencies in these proteins can lead to many problems in developing cells. We shall discuss how mutations induce diseases of high iron levels, and low iron levels. By discussing these effects, we will emphasize the importance of the iron regulators in the process of homeostasis.

What molecular mechanisms are used to create a peroxisome hybrid from mitochondria and ER-derived pre-peroxisomes?
Peroxisomes have been found to be hybrids of mitochondrial and ER-derived pre-peroxisomes. If we understand how peroxisomes are formed in a molecular basis we can further understand the components of a cell, how they came to be, and their functions. A number of peroxisomal membrane proteins were used to isolate the structures involved with peroxisomal biogenesis. Pex3 and Pex14, peroxisomal membrane proteins, are exclusively isolated to mitochondria at the start of formation of peroxisomes, but as formation of the pre-peroxisome continues the Pex3 and Pex14 could be isolated in mature peroxisomes showing that some peroxisomal membrane proteins needed for formation are located in the mitochondria. As for the endoplasmic reticulum (ER), the peroxisomal membrane protein Pex16 targets the ER if peroxisomes are not available in a cell. The isolation of this membrane protein in pre-peroxisomal vesicular profiles confirms the presence of ER-derived Pex16 from vesicular transfer. The import receptors Pex3 and Pex14 target the mitochondria, which is the location in which they are selectively released into vesicular pre-peroxisomal structures. In order for these pre-peroxisomes to mature fusion with the ER-derived vesicles containing Pex16 is needed. The presence of these three proteins shows the integral role that both mitochondria and ER play in peroxisomal formation.

Investigating how the misfolding of prions causes neurodegenerative diseases like Chronic Wasting Disease (CWD)
Prion diseases or transmissible spongiform encephalopathies (TSEs) are neurodegenerative diseases similar to Parkinson’s, Huntington’s and Alzheimer’s. However, prion diseases infect hosts, ultimately leading to the misfolding of PrPc into a fibrill-forming isoform PrPSc. These diseases come in many forms, the most contagious being Chronic Wasting Disease (CWD) commonly seen in cervids. How the prion proteins get misfolded, and why they cause such adverse effects in living organisms, has been the topic of a variety of studies. Fractions of PrPSc and PPrP were isolated, where NMR spectroscopy and X-ray crystallography were used to observe PrP structure. It was found that the post-translational conformational transition from α-helix-rich into β-sheet leads to the accumulation of amyloid fibrils in the cerebral nuclei system causing neurodegeneration. In one study it was found that the β2–α2 loop of PrPc is a key modulator of disease-associated prion protein misfolding and amino acid sequences associated with the rigidity of the loop may be correlated to prion disease susceptibility. The determination of these misfolding provides insights into the susceptibility of individuals to certain TSEs and the mechanisms by which prion diseases infect populations. Furthermore, research into this topic can help to understand other neurodegenerative diseases.

How does the degradation of the plasma membrane contribute to Alzheimer’s disease?
Alzheimer’s is a degenerative disease specifically localized to human brain structures and functions such as memory, body movements, mood, and cognition. Scientists have determined that the biggest factor in Alzheimer’s age, which slowly causes a full body deterioration of substrates such as minerals, nutrients, hormones, and proteins. A protein that lies in the plasma membrane of brain cells, specifically in nerve cells, called beta amyloid, is responsible for the neuronal degeneration that occurs in early stages of Alzheimer’s disease. When β-amyloid is secreted from the cell, it slowly builds up and forms plaques - small pieces of β-amyloid that clump together. At neuronal synapses, these plaque groups have the ability to block cell to cell signalling, which is found to be the basis of dystrophic and deteriorating cognitive functions in the brain. In the past five years, the discovery of β-amyloid plaques have contributed to the early detection of Alzheimer’s disease. These plaques can be visualized in neurological scans, such as PET scans. Knowing that this plaque formation leads to degeneration, researchers are able to identify that neurons in the brain are more susceptible to plaque buildup, which will guide future research of treatment and therapy options.
When the body's protection becomes its destruction: Investigation into the treatment of Psoriasis, Psoriatic Arthritis, and Crohn's Disease

Autoimmune disorders affect 5 to 500 people out of 100 000 globally. Autoimmune diseases are at the present time incurable and most treatments for the diseases focus on symptom reduction and reducing damage done by the immune system. Many of the diseases share commonalities and are thus treated with similar methods. We investigated three such diseases: Crohn's disease, psoriasis, and psoriatic arthritis. Focusing on the treatment of these autoimmune diseases, we will discuss the effects on the molecular level of the leading treatments available. We will also consider disease modifying anti-rheumatic drugs (DMARDs), specifically a class of DMARDs called biologics, that treat the disease by inhibiting the immune system and subsequently impeding the functionality of proteins vital in immune function. The results of the studies indicate that DMARDs do help to treat the effects of the disorders and relieve some of the symptoms, due to the drugs' compromising effects on the immune system, patients taking the medication experience negative trade offs. More research is needed to investigate the cause and treatment of these diseases to be able to better treat them and one day, cure the disease.

What happens to our body when cell communication goes wrong: Diseases which are a result of cell communication failure

Without communication between cells, the human body would not be able to function. Cells communicate through chemical signals such as hormones, that act like words, conveying important messages. But what happens to our body when this communication fails? Our research focuses on three diseases caused by communication failure: Alzheimer's disease, Multiple Sclerosis, and strokes. MS is an autoimmune disease of the central nervous system which attacks the myelin sheath, causing inflammation and damages the myelin. Myelin transmits nerve impulses through nerve fibers and speeds up the transfer of messages. If damage is slight, nerve impulses have minor interruptions; however, if scar tissue replaces the myelin, nerve impulses may be disrupted. Alzheimer’s disease is a devastating, progressive brain disorder which leads to an impairment of the ability to carry out simple tasks. A breakdown in cell signaling is the root cause of Alzheimer’s because it leads to unstoppable neuronal loss in the hippocampal region. Blockages that form in the blood vessels and cut off blood flow are called strokes. These blockages cause adjacent cells to die, which causes these dead cells to release the signaling molecule glutamate. High concentrations of glutamate cause widespread damage of the brain due to over signaling, which causes strokes to be fatal if not caught early.

How does the malfunction of the ubiquitin proteasome system affect many human neurodegenerative diseases and how are they modified?

Defects in the ubiquitin-proteasome system has been suspected in playing a role in the development of a wide variety of neurodegenerative diseases including Parkinson’s, Alzheimer’s, and Huntington’s diseases, based on the presence of deposits consisting of ubiquitylated proteins in affected neurons. All human chronic neurodegenerative diseases contain ubiquitylated proteins and ubiquitin is a highly conserved protein among almost all eukaryotes. Our research is based on an investigation of the role the ubiquitin-proteasome system plays in neurodegeneration and how the system can potentially be modified if affected. The ubiquitin-proteasome system is the major proteolytic pathway that degrades or repairs abnormal and unneeded intracellular proteins in a regulated manner. As the formation of a polyubiquitin is formed, it functions as a signal for degradation for the proteome and it then targets the appropriate proteins. Recent studies have focused on how the ubiquitin-proteasome system can aid in preventing the occurrence of disease linked proteins. In this research, we will discuss the role that the ubiquitin-proteasome system plays in neurodegeneration, whilst also investigating the shift that repositioned the system from being implicated in the pathogenesis of neurodegeneration, to a potentially attractive therapeutic target that can be utilized to increase the elimination of disease-linked proteins.
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<th>Presenter</th>
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<tr>
<td>Chelsea Van Petten &amp; Larissa Wagner</td>
<td>The Effects of Mycorrhizal Networks on Forest Communities</td>
<td>We surveyed the literature to determine the role of mycorrhizal fungi in forest communities. Mycorrhizal fungi are a heterogeneous group of species associated with the roots of higher plants. We found evidence that mycorrhizal fungi play a number of important roles within their community besides their well-known part in the soil carbon cycle. These benefits include defense of their host tree, as well as biotic and abiotic management of their local environment. Mycorrhizal fungi can bring water closer to the soil surface so as to be better utilized by the tree and also can confer benefits during times of extreme temperatures. As one study found that fungi can be transferred between trees within 20m, seedlings planted within this distance to a mature tree may have the advantage of more efficiently obtaining a beneficial mycorrhizal fungi community. Interspecific stress signals can also be transferred between trees by way of the fungi with messages including herbivore or pathogen induced defense signals to warn neighboring trees of pest infestations. Though the exact mechanisms by which mycorrhizal fungi function is not always clear, the importance of the mycorrhizal networks is recognized, and is a topic that deserves to be further explored, especially as climate change challenges increase.</td>
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<td>Nnenna Achebe</td>
<td>Analytical Chemistry in Your Lotions</td>
<td>When people hear the word chemistry, they often think of complicated equations and counter-intuitive topics. Analytical chemistry might not be the first field of chemistry that comes to mind but this does not downplay its importance in almost all aspects of health and safety of everyday compounds. The goal of this presentation is to showcase the importance of analytical techniques in evaluating the composition and safety not of pharmaceuticals, but of a different type of industry—cosmetics and skin care. The various methods of analysis that will be explored include Raman spectroscopy, infra-red spectroscopy, and gas chromatography-mass spectrometry. The presentation will be based on the research presented in the following three articles: “Quantitative analysis of curcumin-loaded alginate nanocarriers in hydrogels using Raman and attenuated total reflection infrared spectroscopy,” “Qualitative assay of essential oils of lavender and peppermint in commercial products through spectral and chromatographic methods,” and “Simultaneous determination of seven nitrogen-containing phenyl ethers in cosmetics by gas chromatography with mass spectrometry and dispersive solid-phase extraction.”</td>
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<td>Warren Bulldog</td>
<td>The Integration of Mass Spectrometry as an Analytical Technique in Polymer Chemistry</td>
<td>Accelerating over the last 40 years, research into the environmental impacts of synthetic polymers has turned to the study of microplastics in marine environments. Improper disposal of a range of plastic materials has resulted in the unprecedented prevalence of microplastics in the furthest reaches of the oceans. In addition, nylon fibers as well as polyethylene and polyvinyl microplastics have been observed in the guts of scarcely studied marine deep life. Consequently, this places anthropomorphic activity on the spotlight as there is no ecosystem absent of microplastics known today. Complete chemical analysis of microplastics requires advancement of spectrometric and spectroscopic techniques and instrumentation. The incorporation of mass spectrometry in polymer chemistry, a brief overview of mass spectrometry theory, and applications using contemporary studies will be discussed.</td>
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<td>Emily Doucette</td>
<td>The Use of Analytical Chemistry Techniques on an Astrophysical Level</td>
<td>Although most analytical chemistry techniques are used to better understand molecular composition at a molecular level, they can also be used to better understand the universe on a much larger scale. Certain techniques such as infrared spectroscopy, Raman spectroscopy, nuclear magnetic resonance spectroscopy and most commonly Fourier transform infrared spectroscopy can be used to study molecular compositions in outer space to give a better understanding of what exists beyond Earth’s atmosphere. The most common studies include studying clathrate-hydrates and how they react with guest molecules, how solid ammonia behaves under astrochemical conditions, and using Fourier infrared spectroscopy for astronomical imaging at far-infrared wavelengths. With these studies a better understanding of the composition of the planets, moons, comets, etc. can be achieved as well as insight into what the early stages of the universe may have looked like.</td>
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<td>Naomi Mahdere</td>
<td>Real-Time Sample Analysis Using a Miniature Mass Spectrometer</td>
<td>A miniature mass spectrometer has been developed for real-time analysis of biological and chemical compounds by fitting it with a sampling probe that contains both a spray channel and one for transferring charged species back to the mass spectrometer. Analyses of various samples were performed to study the design of the fitted probe along with the use of ion trap mass analysis in a discontinuous atmospheric pressure interface (DAPI). In-field sample analysis using this miniature system is expected to provide solutions to the problem of obtaining real-time data for both volatile and nonvolatile compounds using mass spectrometry. The miniature mass spectrometer with a sampling probe can be used as a backpack-type spectrometer for forensic analysis or in a compact manner when fitted with an intrasurgical probe for medical analyses.</td>
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| **Alixia Smith**  
Dr. James Kariuki  
AUCHE 320 | Raman Spectroscopy in Modern Medicine | The utilization of Raman spectroscopy in the detection of biological anomaly in the human body is described. A comparison of Raman spectroscopy and other techniques currently used in hospitals is made with a goal of determining if Raman spectroscopy would be a more efficient and cost-effective technique to use in the future. The detection of the levels of potassium in the human blood using Raman spectroscopy is also described. The method was found to be effective, fast, and repeatable. The use of Raman spectroscopy to determine if cancerous cells are present in tissue is presented and was found to be effective in identifying the cancerous tissues. Raman spectroscopy was also used to differentiate some biological cells in the immune system from one another. The method demonstrated great progress in the separation of the different cells used in the immune system, and could represent a fast and effective way to identify immune responses. | 7:30 - 8:00pm |
| **Kyle Sieben**  
Dr. James Kariuki  
AUCHE 320 | Utilization of Surface Enhanced Resonance Raman Spectroscopy to Diagnose Diabetes | The study described conducted an analysis of glycated hemoglobin (HbA1c) as well as unglycated hemoglobin (HbA) in an effort to explore methods that properly monitor blood glycemic levels in diabetic patients. Sample components (HbA and HbA1c) were separated onto silver nanoparticles due to their differences in hydrophilicity and through electrophoresis. Using a high-powered plasma laser source, selective detection of the respective analytes, HbA and HbA1c, was then performed using surface enhanced resonance Raman spectroscopy (SERRS). Presence of this band at 830 cm−1 in the spectrum of HbA1c indicates that surface enhanced resonance Raman spectroscopy is a valuable technique for the monitoring of blood glucose levels in humans. Some vital advantages of SERRS include: the enhancement of Raman scattering light intensity, reduction of fluorescence by energy transfer from hemoglobin to a silver surface, significantly advanced detection limit, and the simple sample preparation. After analysis of the use of SERRS to detect glycated hemoglobin, it is clear that the spectrally distinct Raman band at the 830 cm−1 position demonstrates that SERRS is an effective tool for the quantitative analysis of blood glucose and may be useful for diabetic diagnosis. | 7:30 - 8:00pm |
| **Mathew Kowalski**  
Dr. Elizabeth McGinitie  
AUCHE 390 | The Changing “Flow” of Chemistry: Recent Advances in Continuous-Flow Catalysis | The recent development of the continuous-flow reactor has changed the face of synthetic chemistry. In particular, the field of catalysis has been especially affected by this advancement. This poster presentation will outline the fundamental principles of continuous-flow chemistry from flow reactor design and catalytic applications to its role in enhancing the environmental sustainability of synthetic chemistry. | 7:30 - 8:00pm |
| **Patrick Smith**  
Dr. Elizabeth McGinitie  
AUCHE 390 | Design and Synthesis of a Novel Ligand for Metal-Organic Framework Catalysts | Catalysis is a very widely used technique employed in the field of chemistry as it allows chemists to manipulate reaction pathways to enhance reaction rate and reaction selectivity. Within the field of catalysis lies the niche of catalyst-containing metal-organic frameworks (MOFs). Here, the catalysts are built into the three dimensional framework of the MOF and, notably, they have shown promising activities and selectivities for a variety of chemical reactions. This poster presentation will discuss our recent progress related to the design and synthesis of a new ligand system for a catalytic MOF. | 7:30 - 8:00pm |
| **Bronte Kelly, Alana Ell & Sam Fafard**  
Dr. Tim Parker  
AUPSY 303 | Thermoregulation in REM and NREM Sleep | The circadian rhythms of sleep-wakefulness and core body temperature (CBT) are normally coupled and are determined by the biological clock in the suprachiasmatic nucleus (SCN) of the hypothalamus (Szymusiak, 2017). Sleep onset is associated with the integrated thermoregulatory response, such as reduction in metabolic rate, increased loss of heat to the environment through peripheral vasodilation, and increased evaporative cooling to promote a fall in CBT. Neurons in the preoptic and anterior hypothalamus (POA) are critically involved in the neural control of sleep and thermoregulation, with temperature sensing neurons participating in sleep regulation. During NREM sleep thermoregulatory mechanisms are intact but body temperature is regulated at a lower level than during wakefulness (Bach, Telliez, & Libert, 2002). In REM, thermoregulatory effector mechanisms are inhibited and thermal homeostasis is disrupted. | 7:30 - 8:00pm |
| **Ashley McCaig, Leanne Shapka, & Rebecca Dyck**  
Dr. Tim Parker  
AUPSY 303 | The Amygdala: The Brain’s Fear Conditioning Centre | In our poster, we will display research that supports the essential role of the amygdaloid complex in fear conditioning. In order to provide evidence for the role of the amygdala in fear conditioning, we will use historical and modern-day studies of lesioning in animals or digital imaging and physiological testing in humans. Finally, after displaying the role of the amygdala in fear conditioning, we will suggest the further implications of this knowledge by using recent research on practical applications of the amygdala’s role in fear. | 7:30 - 8:00pm |
| **Ryley Rubachuk, Cheyenne Lafferty, & Elizabeth Martinson**  
Dr. Tim Parker  
AUPSY 303 | Neurobiology of Love | Our presentation focuses on the underlying neurotransmitters, hormones and structures that focus on the feelings of love. We have found multiple neurotransmitters and hormones like GABA, Cortisol, Oxytocin, and Vasopressin play a common role in the feelings perceived as love. These neurotransmitters and hormones not only play a role in the feeling of love, but also drug addiction. We have found that hormones and neurotransmitters can be vastly different in women and men, and can cause different effects, like addiction to the feeling of love. In our presentation, we want to point out where these hormones and neurotransmitters are secreted and how they affect the feelings correlated with love. | 7:30 - 8:00pm |
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<th>Forum</th>
<th>Anxiolytic drugs, fear, phobias, and the amygdala.</th>
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<tr>
<td>Tara Berger, Andrew Klassen &amp; Madeline Killoh</td>
<td>Propranolol is a beta-blocker commonly used to treat high blood pressure, various heart problems, performance anxiety, and as prevention for migraines to name a few. However, researchers have found that it also seems to lessen the severity and frequency of post-traumatic stress disorder (PTSD) symptoms. Its effects are long lasting, which means that it has the potential to be a low cost, time efficient, and long-term treatment for those who suffer from PTSD. The sooner it is administered after a traumatic event or its recall, the better the results will be because it is more of a preventative treatment. Propranolol decreases amygdala and hypothalamus function, plays a part in memory reconsolidation blocking, and positively improves emotional and cognitive processes after a traumatic event. So far, little has been found to discourage researching the effects of propranolol on brain function and symptoms of PTSD.</td>
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<td>Colleen Prenoslo, Braeden Stang, Lauren Griffin &amp; Tayla Koerber</td>
<td>Serotonin and Aggression</td>
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<td>A great deal of research has been conducted on aggression and the underlying mechanisms that regulate it. Much of the literature has focused on the possible role of serotonin (5-HT) as a regulator of aggression (Brown, Goodwin, Ballenger, Goyer, &amp; Major, 1979). Aggression is defined by “signals, acts and postures for the purpose of obtaining a specific goal or in defense against some threatening stimuli” (Takahashi, Quadros, de Almedia, &amp; Miczek, 2010, p. 184). The link between serotonin and aggression is best studied indirectly through the study of its breakdown metabolites, namely 5-hydroxyindoleacetic acid (5-HIAA). Brown et al. (1979) found that young males with a history of violence tended to have lower levels of 5-HIAA, supporting a negative correlation between 5-HT levels and aggression. This negative correlation has come to be known as the serotonin-deficiency hypothesis of aggression (Takahashi et al., 2010).</td>
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<td>Ashley Ostapowich &amp; Rhonda VanAssen</td>
<td>The Effects of Propranolol on Post-Traumatic Stress Disorder Symptoms</td>
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<td>Propranolol is a beta-blocker commonly used to treat high blood pressure, various heart problems, performance anxiety, and as prevention for migraines to name a few. However, researchers have found that it also seems to lessen the severity and frequency of post-traumatic stress disorder (PTSD) symptoms. Its effects are long lasting, which means that it has the potential to be a low cost, time efficient, and long-term treatment for those who suffer from PTSD. The sooner it is administered after a traumatic event or its recall, the better the results will be because it is more of a preventative treatment. Propranolol decreases amygdala and hypothalamus function, plays a part in memory reconsolidation blocking, and positively improves emotional and cognitive processes after a traumatic event. So far, little has been found to discourage researching the effects of propranolol on brain function and symptoms of PTSD.</td>
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