Proceedings of the 29th Lehigh Valley Undergraduate Research Conference for Psychology

April 26, 2014
DeSales University

Participating Schools
Cedar Crest College               Moravian College
DeSales University                 Muhlenberg College
Dickenson College                  Ursinus College
Lafayette College                  York College
Lehigh University

Venue
DUC (DeSales University Center)
(Parking available in front of #13 DUC or #15 Dooling Hall
See campus map at the last page of the Proceedings)

Conference Coordinators
Dr. Boyce Jubilan
Dr. Sarah Starling
Ms. Colleen Petrick
Proceedings of the
Fifth Annual
Lehigh Valley Society for Neuroscience Chapter
Undergraduate Research Conference

April 26, 2014
DeSales University

Founding Member Institutions
Moravian College
Cedar Crest College
Lafayette College
Muhlenberg College
Lehigh University

Participating Schools
Brown University
Bucknell University
Cedar Crest College
Lafayette College
Lehigh University
Moravian College
Muhlenberg College
St. Joseph’s University
University of Pittsburgh
Ursinus College
Widener University

Conference Coordinator
Dr. Cecilia M. Fox, President of the LVSfN
Sponsorship

Our meeting is kindly supported by:

Society for Neuroscience, Washington, D.C.
Moravian College Neuroscience Program, Bethlehem, PA
DeSales University, Center Valley, PA
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About Our Chapter

The Lehigh Valley Chapter of the Society for Neuroscience is a local affiliate of the National Chapter of the Society for Neuroscience (SfN). The Society for Neuroscience is the largest professional organization committed to the discipline of neuroscience worldwide. The Lehigh Valley SFN Chapter is composed of primarily neuroscience faculty, undergraduates, graduate students, clinicians and interested public. This local chapter is dedicated to fostering social responsibility and leadership abilities in all Lehigh Valley Chapter members as they engage in scholarship and public outreach regarding the brain and benefits of neuroscience research through brain awareness service learning programs.

For More Information Regarding the Scholarship and Brain Awareness Outreach Efforts of the Lehigh Valley SfN Chapter

Please visit www.lvsfn.com

Thank you for your participation in this celebration of undergraduate scholarship!
Conference Schedule

8:00-9:00AM Registration and Coffee

9:00-10:00AM Morning Paper Session
   Session 1. Cognitive/Developmental Psychology (The Heritage Room)
   Session 2. Cognitive/Social Psychology (The Trexler Room)
   Session 3. Philosophy of Mind (The Wood Room)

10:00-11:00AM Morning Paper Session
   Session 4. Cellular/Behavioral Neuroscience (The Heritage Room)
   Session 5. Applied Psychology (The Trexler Room)
   Session 6. Applied/Social Psychology (The Hurd Room)

11:00-12:00PM Welcome Message (The Commonwealth Room)
   Dr. Robert Blumenstein, Dean of Undergraduate Education
   DeSales University

   Keynote Address
   Learning from Language Learners
   Patricia A. Reeder, Ph.D.
   Dickinson College

12:00-1:00PM LUNCH

1:00-2:00PM Afternoon Poster Session *(The Dining Hall)

1:45-2:45PM Afternoon Paper Session
   Session 7. Cognitive Psychology (The Heritage Room)
   Session 8. Social Psychology (The Hurd Room)
   Session 9. Social/Applied Psychology (The Wood Room)

2:45-4:00PM LVSfN Welcome Message (The Trexler Room)
   Dr. Cecilia M. Fox, President of the LVSfN
   Moravian College

   Keynote Address and Reception
   Using Zebrafish to Observe Behavioral Changes after Developmental
   Exposure to Organophosphate Pesticides

   Holly Richendrfer, Ph.D.
   Brown University

*Poster Session: Authors should be present at their posters during the 1:00-2:00PM Poster Session. Posters can be posted for viewing as early as 9:00AM.
Psychology Keynote Address

Learning from Language Learners

Patricia A. Reeder, Ph.D.
Dickinson College

Abstract: One of the many mysteries of human development is how we transition from being nonverbal infants to fluent language users in a matter of 4-5 years, without any formal language education. In this talk, I will present a brief overview of our efforts to understand how the human brain achieves this remarkable feat. In particular, I will discuss research exploring how children and adults implicitly learn complex linguistic and non-linguistic structures. The data from these experiments help to clarify the interplay between the information we encounter in our environment and the constraints on learning imposed by our biology.

Bio: Patricia Reeder is currently a Visiting Assistant Professor of Psychology at Dickinson College. Prior to joining the faculty at Dickinson, she was a postdoctoral research fellow and senior instructor at the University of Rochester. Her teaching and research interests sit at the intersection of developmental and cognitive psychology. Much of her previous research has investigated the cognitive mechanisms that enable children and adults to implicitly learn complex information, with a focus on language acquisition. Her ongoing research explores the maturational and experience-based factors that shape learning outcomes. Dr. Reeder earned her Ph.D. in Brain & Cognitive Sciences at the University of Rochester, where she worked with Elissa Newport and Richard Aslin.

Neuroscience Keynote Address

Using Zebrafish to Observe Behavioral Changes after Developmental Exposure to Organophosphate Pesticides

Holly Richendrfer, Ph.D.
Postdoctoral Fellow
Brown University

Abstract: In the Creton lab at Brown University, a unique high-throughput behavioral assay has been developed to detect subtle changes in anxiety-related behavior in zebrafish larvae. This research talk will focus on the effects of organophosphate pesticides on anxiety-related behavior and neurodevelopment using zebrafish as a model system. This behavioral assay has been applied to detect changes in anxiety-related behaviors such as avoidance and thigmotaxis after early exposure to low levels of organophosphates. In addition, a transgenic line of zebrafish that express GFP in all neuronal populations is being utilized to assess changes in neuron number, volume, and projections after exposure to low levels of organophosphates in brain areas linked to anxiety.
Session 1. Oral Presentations: 9:00-10:00AM
Venue: The Heritage Room
Topic: Cognitive/Developmental Psychology
Chair: Dr. Patrick Williams

9:00-9:15. Filling in the gaps: The role of Inference-Making Skills in Overall Narrative Listening Comprehension
Jacob Silber
Lehigh University
Faculty Sponsor: Dr. Ageliki Nicolopoulou
This study examines the relationship between inference-making skills during storybook reading and overall listening comprehension in young children. Additionally, the study looks at whether vocabulary and verbal memory also contributes to overall narrative comprehension above and beyond inference-making skills. Twenty-four children, 13 4-year-olds and 11 6-year-olds, were tested. Each child was read two commercially available children's books at two different occasions. While reading each book to them, the children were asked embedded inferential questions. At the end of the book, participants performed a free-recall of the story using five key pictures as a guide and then answered several comprehension questions. Both post-reading measures will be combined into an overall narrative comprehension score. We expect that 6-year olds will perform better on inference-making and overall comprehension than 4-year olds. We also expect that inference-making skills will contribute to narrative listening comprehension above and beyond vocabulary and verbal memory skills.

9:15-9:30. Reading Increases Visual and Verbal Creative Thinking
Christopher Regnier
Lafayette College
Faculty Sponsor: Dr. Luis Schettino
The empirical study of literature has been largely overlooked; indeed, only in recent years have researchers linked reading literature with increases in empathy and theory of mind performance. Objective definitions of literature are lacking; using the formalist definiton of literature, we hypothesize that there are literary elements which serve to prime verbal and visual divergent thinking. Participants (n=42) were shown incomprehensible, nonliterary, and literary texts, after each of which participants were presented with nine compound remote associates task (CRAT) and one matchstick arithmetic problem. For some participants (n=8), gaze was tracked in order to measure stages of complex cognition while completing the tasks. Preliminary results indicate reading nonliterary texts promote verbal and visual divergent thinking more than incomprehensible or literary texts. Further data analysis is being conducted.

9:30-9:45. Exploring Theory of Mind in Adults
Jacqueline Werner
Lehigh University
Faculty Sponsor: Dr. Amanda Brandone
Theory of mind (ToM) is the ability to attribute mental states to others and use them to understand human behavior. Although extensive research has examined ToM's development during childhood, less is known about how to characterize the adult ToM system. Thus, this study aimed to explore the nature of the adult ToM system by examining individual differences in performance on ToM tasks, and to test whether individual differences in ToM predict differences in real world social competence. Ninety-six undergraduates completed a series of ToM tasks (assessing mental state concepts, perspective taking, emotion understanding, and empathy) and a measure of social competence. Results showed that the ToM system is comprised of two components: (1) the skills required to evaluate others' emotions and mental states, and (2) the motivation to engage in these processes. Results also indicated that ToM motivation may be a stronger predictor of social competence than ToM skills.

9:45-10:00. Mind Wandering's Influence on Attitudes, Attributes, and Decision-Making
Lisa Mogami
Lehigh University
Faculty Sponsor: Dr. Kate Arrington
Mind wandering occurs to everyone, whether it’s in or out of the lab. This study examines the effects of mind wandering on multiple aspects of the consumer choice process. We tested the hypothesis that people tend to use heuristic-like thinking while mind wandering, while they use more deliberate thinking when on-task. Participants were asked to make a series of hypothetical purchase decisions between two exemplars of a product (ten products with varying complexity) based on attributes. They were periodically interrupted by thought probes, which tested for mind wandering. Lastly, subjects ranked the attributes’ order of importance for each product in a survey. Although we predicted main effects of complexity and mind wandering, our results did not confirm our hypotheses. However, subjects tended to have faster reaction times while mind wandering. Currently, we are looking to see whether the participants’ salient beliefs while on-task matched their actual behavior during mind wandering.
Session 2. Oral Presentations: 9:00-10:00AM  
Venue: The Trexler Room  
Topic: Cognitive/Social Psychology  
Chair: Dr. James Scepansky

9:00-9:15. The Impact of Weight and Gender on Perceptions of Sales Associate Effectiveness. 
Lauren Salgado  
*Cedar Crest College*  
**Faculty Sponsor:** Dr. James Scepansky  
The current study examined the impact of weight and gender on perceptions of a sales associate’s effectiveness in an interaction with a customer. Participants (N = 65) watched a video recording of a mock interaction between a sales associate for a fictional technology company and a customer looking for advice; weight and gender of the sales associate were independently manipulated, whereas the customer was female across conditions. Participants completed a 33-item Likert-type instrument measuring evaluations of the sales associate, the customer, and the interaction between the two individuals; they also completed Crandall’s (1994) Anti-Fat Attitudes Scale and a brief demographic survey. The researcher predicted the most negative responses would yield from the female overweight condition. The results were inconclusive, and further implications will be discussed.

9:15-9:30. The Impact of Multiple Causes on Categorization  
Andrew Zeveney  
*Lehigh University*  
**Faculty Sponsor:** Dr. Jessecae Marsh  
People act as if all members of a category (e.g., birds) become a member of that category in the same way (e.g., through an expression of their DNA). However, in categories like health categories, this is not necessarily true. For instance, a person could develop lung cancer due to smoking or a genetic predisposition. We explored the way that people’s beliefs about categories change when they learn that there can be multiple routes to membership as in the previous example. We constructed novel categories varying in the number of routes to category membership. We measured participants’ causal essentialism beliefs: the belief that members of naturally existing categories share an underlying causal feature that generates other category features. Participants were less willing to endorse a causal essence if there were multiple ways to become a member of the category. We discuss the implications of this finding for theories of categorization.

9:30-9:45. Impact of Women’s Leadership Priming on Moderation of Math Stereotype Threat Effect  
Alyssa Babecki  
*Cedar Crest College*  
**Faculty Sponsor:** Dr. James Scepansky  
The current study examined the effects of leadership salience and stereotype threat on undergraduate students’ (N = 56) leadership aspirations and math performance. Participants viewed videos that varied in leadership salience and read articles varying in stereotype threat salience, then completed a math assessment and questionnaires measuring leadership aspirations. Inconsistent with hypotheses, results indicated no main effects of leadership salience or stereotype threat on participant’s math performance, math confidence, or leadership aspirations. Results also did not show an interaction between leadership salience and stereotype threat, implying no evidence that leadership salience effectively diminished stereotype threat effects.

9:45-10:00. Essentialism and Scientific Knowledge  
Deyang Nyandak  
*Lehigh University*  
**Faculty Sponsor:** Dr. Jessecae Marsh  
Essentialism is the belief that members of a group share an immutable feature that causes their characteristics. This belief correlates with lower acceptance of evolution as a valid scientific theory. Evolutionary theorists have argued against essentialism, as variation within members of a group counters the concept of a core feature that causes uniform characteristics across the members. The main goal of the project was to investigate if peoples’ belief and training in evolution changes their essentialist beliefs. We found that people’s evolutionary beliefs do not moderate their essentialist beliefs, neither does any short-term exposure to the evolutionary theory in a lab setting. However, an extensive training in evolution shows significant reduction in causal essence and similarity endorsement across different domains that include animals, natural kind inanimate objects, social groups and man-made objects. They do not show significant changes in the endorsement of the implicative beliefs of causal essence such as category-based induction.
9:00-9:15. Personhood: What Makes Us Human
Elizabeth Blaisse
DeSales University
Faculty Sponsor: Dr. Brian Kane

Who are we? What are we? What is our essence, our nature? Is there a distinction between what it means to be "human" and what it means to be a "person?" These are important questions to consider when seeking the truth about our personhood and what it means to be human. These questions have been pondered in many different schools of thought, including scientific, religious, and in particular philosophical thought. The word "philosophy" comes from two Greek words, "philos" and "sophis" literally meaning "the love of wisdom." Wisdom has been described as the knowledge of fundamental principles and laws that are unchanging. Philosophy has been referred to as the searching of these basic principles of life. Stewart formulates a definition of philosophy as "the attempt to provide for oneself an outlook on life based on the discovery of broad, fundamental principles".

The distinction between the mind and the body, which has been a topic of debate among many philosophers and theologians for centuries is the core of the so called "mind-body problem" has never truly been solved. What then, is the mind-body problem? The "mind-body problem" refers to the consideration of the nature of the human mind and whether it is material or immaterial. Although this problem has been the root of many philosophers’ search for the truth, others do not think it is even necessary to discuss it as a “problem.” The question then arises: Is the mind-body problem and the idea of personal identity worth studying? This author would argue yes, the mind-body problem and the idea of personal identity are worth studying because it is the discussion of the difference between the "body" and the "mind" and what this distinction means for the human person and the meaning of life. Is the mind immaterial or is the material body the only true "self?"

9:15-9:30. Battling the Concept of Identity:
Separating the Mind from the Brain
Brian Welsko
Moravian College
Faculty Sponsor: Dr. William Falla

Throughout history there has been much debate over the identity theory. Is the mind and brain separate? Or are they one in the same? Men such as Rene Descartes and Antonio Damasio have each discussed these concepts in length. Descartes favors a more dualist view, while the other, Damasio, believes in a monist view. This paper examines the side of the dualist, or one who believes that the mind is not material and is a separate entity from the brain. To prove that dualism is a more logical approach than monism, this paper will discuss three important factors - (1) Rene Descartes’ concepts of indivisibility and indubitability; (2), the importance of downward causation in the argument for dualism; and (3), the argument against Antonio Damasio’s view of monism.
Session 4. Oral Presentations: 10:00-11:00AM
Venue: The Heritage Room
Topic: Cellular/Behavioral Neuroscience
Chair: Dr. Joe Brague

10:00-10:15. The Neuroprotective Potential of Combined Antioxidant Therapy in a 6-hydroxydopamine Rat Model of Parkinson’s Disease
Chelsea Mursch
Moravian College
Faculty Sponsor: Dr. Cecilia M. Fox
In this study, Vitamin E and selenium were co-administered orally to determine whether there is an enhanced protective effect on dopamine neurons of the substantia nigra challenged by the neurotoxin, 6-hydroxydopamine (6-OHDA). Twenty Fisher 344 rats were randomly divided into the following two groups: a) Vitamin E (500 IU) + Selenium (2ppm) enhanced diet and 2) control rat chow. Both groups were administered this diet for four weeks prior to receiving a 6-OHDA nigral lesion. Behavior was assessed pre and post surgery via the foot fault and cylinder tests to examine fine motor skills in these animals. The rats were euthanized five weeks post lesion and their brain tissue was processed for tyrosine hydroxylase immunocytochemistry to examine cell survival within the substantia nigra.

10:15-10:30. TLR4 Mutation Enhances Seizure Susceptibility in C57BL Mouse Model
Rachel Hamilton
Lafayette College
Faculty Sponsor: Dr. Lisa Gabel
Seizures occur due to waves of excitation spreading throughout both hemispheres of the brain via the corpus callosum. Gabel et al (2012) found BXD29 mice with a TLR4 mutation and inherent partial callosal agenesis – similar to surgical techniques used to allivate seizures in humans – to have increased resistance to seizure. The present study aims to examine the effect of a toll-like receptor 4 (TLR4) mutation in the parental strains of the BXD29 mouse on seizure resistance. C57BL/6J, C57BL/10ScNJ, and B6.B10ScN-Tlr4ps-del/Jthj mice were injected with 55 mg/kg PTZ to induce seizure; seizure stage (rated 1-4 as described in Claycomb et al 2011), latency, and severity (based on latency and duration) were recorded. C57BL/6 mice had longer latency to generalized clonic and tonic-clonic seizure (stages 3 and 4) than other strains which display TLR4 mutation. BL6 subjects had more severe stage one seizures than BL10ScN subjects and less severe stage three seizures than B6.B10ScNTr4 subjects. This suggests the TLR4 mutation reduced seizure resistance and may have promoted seizure activity. These results suggest that further investigation into partial agenesis of the corpus callosum should not be affected by a TLR4 mutation present in subjects.

10:30-10:45. Hox Genes Regulate Postembryonic Neural Development in the Drosophila Ventral Nervous System
Alexandra Panzarino
Bucknell University
Faculty Sponsor: Dr. Elizabeth Marin
Hox genes provide positional information for developing structures along the anterior-posterior axis of animals. In Drosophila, the Hox genes determine segment-specific appendages such as antennae (head), wings and legs (thorax). Mutations in these genes transform one body part to that of another in a different segment; for example, loss of Ultrabithorax (Ubx) function creates a second pair of wings by converting the third thoracic segment to the second, while ectopic expression of Antennapedia (Antp) in the head transforms the antennae to legs. In the postembryonic ventral nervous system, 25 different neural stem cells, called neuroblasts, give rise to defined lineages of adult-specific progeny neurons. Many of these neurons exhibit segment-specific survival and morphology. Our lab has shown that Ubx is expressed in a segment-, lineage-, and hemilineage-specific manner in the thoracic and anterior abdominal segments. Additionally, manipulations of Ubx cause anterior and posterior transformations depending on lineage location within the ventral nervous system. We found similarly heterogeneous expression of Antp within these segments as well as anterior and posterior transformations when manipulating this gene. In the future, our lab will seek to elucidate the interaction between Antp and Ubx in the development of the ventral nervous system.

10:45-11:00. Intersectional Genetic Strategies Define a Novel Population of Wide-Field Amacrine Cells in the Murine Retina
Dylan Burbree and Lindsey Snyder
University of Pittsburgh
Faculty Sponsor: Dr. Sarah Ross
Wide-field amacrine cells are postulated to stabilize vision. However, the underlying neural circuits remain unclear. Here we show that the transcription factor Bhlhb5 selectively labels a novel subpopulation of wide-field amacrine cells (termed B5-ACs), allowing us to visualize these neurons and address their function. To gain a genetic handle on B5-ACs, we generated a Bhlhb5-flpo allele and thereby discovered that, as a population, B5-ACs cells stratify in IPLs 1, 2, 4, 6, and 8. Sparse labeling of this population through intersectional genetic strategies reveals that B5-ACs have 2 - 15, very straight, mostly unbranched processes that span over 2000 um and ramify within a single sublamina the IPL. Now by combining cre and flp in different populations of retinal neurons, we are systematically assessing the connectivity of B5-ACs. These studies will give us insight into a novel population of amacrine cells.
10:00-10:15. Perceptions of Morality in Medicine
Brady Dubin
Lehigh University
Faculty Sponsor: Dr. Gordon Moskowitz
This research focuses on perceptions of morality in medicine. More specifically, the experiment examines whether or not people moralize the actions of medical doctors more or less than the actions of professionals in other fields. Physicians and other health professionals are often viewed as moral beings who uphold the principles and ethics of the medical field; this may allow people to sever the connection between any observed transgressions committed by a physician and the actual character of the physician. For the study, participants read a scenario that described either a university professor or a medical doctor committing a verbal racial transgression against another individual, in a health setting, university setting, or neutral setting. Results of the study suggest that people may view health professionals on higher moral grounds than other professionals, as doctors were rated significantly higher on measures of compassion and caring than were professors, especially in health settings.

10:15-10:30. A Review: The Effects of Excess Dopamine on the Neurological Disorder of Schizophrenia
Catherine Nonnemacher
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
Schizophrenia is a neurological disorder investigated since the late 1900’s. Several studies were done to unlock the mind of people suffering from this condition. In the majority of contemporary literature, there is strong indication of the link between the neurotransmitter dopamine and its relation to the disorder. This literature review presents different perspectives between researchers and scholars with regards to the role of dopamine in the disorder. This literature review evaluates the neurodevelopment of schizophrenia and also the emerging therapies for this condition. There is a need to inquire whether dopamine is indeed a relevant to the pathology of schizophrenia and a review of literature on this subject can help clarify the issue.

10:30-10:45. Psychosocial Moderators and the Stress-Mental Health Relationship in Parents of Children with Special Needs
Lauren Steinbeck
Lafayette College
Faculty Sponsor: Dr. Jamila Bookwala
Previous research has demonstrated that becoming a caregiver for a child with special needs (CSN) can be one of the most stressful life-altering experiences for parents. The current study sought to determine how parents respond to the stress of caring for their CSN, using families that belong to support groups such as The Miracle League. Fifty parents of CSN completed a questionnaire assessing perceptions of general life stress and caregiving-specific stressors; two psychosocial moderators: social support and personal mastery; and two mental health outcomes: depressive symptomatology and ratings of life satisfaction. Results showed that the greater the amount of stress experienced, the more deleterious the mental health outcomes. In addition, social support and personal mastery acted as moderators of the relationship between the two types of stress and depressive symptomatology.

10:45-11:00. The Effects of Exercise on Fibromyalgia
Janice Clawson, Carol Colomer, Autum Fichter, Genesis Gomez
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
The objective of this study was to investigate the benefits of exercise for women with fibromyalgia. Ten women between the ages 35-60 filled out a demographic questionnaire. Each participant then filled out a Wong-Baker Faces Pain Rating Scale twice a day (morning and night) for a period of two weeks. At the end of each week the subjects filled out a Pain Quality Assessment Scale. Using Pearson’s test of correlation, these pain ratings were correlated with the amount of exercise. There was an inverse correlation between exercise and perceived pain, but was not statistically significant (p > .05). In conclusion, we found that exercise seems help reduce the pain of fibromyalgia patients.
10:00-10:15. Effect of Music on Heart Rate in Athletes
Robert Turka, Stephen Van Doran, Tyler Tocci, Mahendi Singh
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
The relationship between heart rate and music was determined in men college athletes and non-athletes. Ten participants from track and field who constituted the individual team sport; ten participants from rugby, the team sport; and twenty non-athletes participants volunteered in this study. The heart rate of each participant was measured using a fingertip pulse oximeter, before and after listening to a song of their choice. The participants also filled out a survey detailing their music preferences. ANOVA showed a statistically significant interaction between sports and change in heart rate after listening to music ($p = .038$). Furthermore, a statistically significant interaction between sports and change in percent of blood oxygen after listening to music ($p = .047$) was also observed. Listening to music had a significant effect on the cardiovascular status of students.

10:15-10:30. Regulatory Fit in Collegiate Athletic Performance and Motivation
Victoria Oliva
Lehigh University
Faculty Sponsor: Dr. Gordon Moskowitz
When individuals pursue a goal, there are three classes of factors that are critical in achieving that goal according to regulatory focus theory: (1) the motivational orientation toward the goal, (2) the way in which that goal is pursued, and (3) the feasibility and desirability of the goal itself (Higgins, 1997). Looking within an athletic context, the current study seeks to investigate the effects of motivational orientation (promotion- or prevention-focus) on athletic performance using Lehigh University football players as participants. The study investigates performance in sport-relevant tasks (squat and vertical jump tests), a sport-irrelevant task (cold water test), and an academic questionnaire. The primary hypothesis is that the fit between an individual’s orientation and task framing will lead to greater motivation, and thus performance, on the tasks. Through a greater understanding of these motivational influences, coaches can adapt different goal approach strategies and coaching styles accordingly.

10:30-10:45. Effect of Music Making on Group Rapport and Unity
Natalie Evans, Ellen Herschel
Muhlenberg College
Faculty Sponsor: Dr. Laura Edelman, Dr. Kathy Harring
The purpose of this study was to discover if music making had an affect on a group’s rapport and unity. Previous studies have shown that music increases feelings of rapport and unity among individuals in a group. In this study, we conducted a survey among established campus groups at Muhlenberg College. We included co-ed groups as well as single gender groups. We sampled groups both involved in music making as well as non-musical groups. We predicted that musical groups would show greater rapport and group unity when compared to non-musical groups and that the gender composition of the group may interact with the group's function.

10:45-11:00. The Effects of Music and Synchrony on Group Rapport and Unity
Natalie Evans, Shauna Kehoe, Sam Ramos
Muhlenberg College
Faculty Sponsors: Dr. Laura Edelman, Dr. Kathy Harring
This study examined the effect of synchrony and disliked music on group rapport and unity. We predicted that perceptions of rapport and entitativity would be lessened when disliked music was present because the music would be less likely to create feelings of common meaning. Participants watched a video of three women walking in or out of synchrony. In the music conditions, participants heard music that was predetermined to be unpleasant while watching the video. We found that participants perceived the women as having more unity when the music was present and when they walked in sync. Music and synchrony did not have significant effects on rapport, although the women were rated as having more rapport for one another than entitativity. These results may have occurred because the participants perceived that the women had a shared understanding of the unpleasant music, which led to perceptions of entitativity.
1:45-2:00. The Role of Top-Down Processing and Orthographic Knowledge in Word Recognition
Kelsey Snyder, Holly Tomaszewski, Lindsay Romanic, Daniel Rybak
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
A total of 50 undergraduate students (27 women and 23 men) were tested on their ability to recognize two scrambled words in a number of sentence over four conditions: Conditions 1 & 2: sentences are syntactically correct but differ in type of letters scrambled. Conditions 3 & 4: sentences are syntactically incorrect but differ in type of letters scrambled. Conditions 1 & 3 had the inside letters scrambled; Conditions 2 & 4 had all letters scrambled. The number of errors were recorded and time of completion monitored. Results show more errors in Conditions 3 & 4 compared to Conditions 1 & 2 ($p < .0005$). Results also show more errors occurred in Conditions 2 & 4 as compared to Conditions 1 & 3 ($p < .0005$). This demonstrates that top-down processing plays a vital role in reading.

2:00-2:15. Chocolate on the Brain
Rachel Boone, Patricia Halpin, Katelyn McPartland, John Pinto
DeSales University
Faculty Sponsor: Dr. Sarah Starling
The purpose of this experiment was to determine whether the consumption of dark chocolate influences working memory. 25 DeSales University undergraduates (12 males and 13 females) consumed a small bar of Hershey's dark chocolate and were later given a digit span test. Four different groups were tested; the first three were tested 20 minutes, an hour, or two hours after consuming the chocolate. The control group was tested before eating chocolate. Based on previous research showing a positive effect of flavanols in dark chocolate on various aspects of health and memory, we expected the best performance from those who consumed the dark chocolate two hours prior to taking the test because they had longer to digest it. A one-way ANOVA however, did not indicate any significance of the chocolate on working memory. This insignificance is most likely a result of the limited amount of chocolate.

2:15-2:30. Cognitive Control of Athletes and Videogamers
Sianta Anderson, Chad Unera, Catherine Buck, and Andre Sumiel
DeSales University
Faculty Sponsor: Dr. Sarah Starling
We examined control, specifically cognitive flexibility in Athletes, Video Gamers and a control group. Using a task similar to the Wisconsin card sort, participants were given a deck of cards and had to sort them based on color, shape, or number but were not told the current rule. It was hypothesized that gamers would complete the task faster and with fewer errors because video gamers have been shown to have better cognitive control than non-videogamers. We found that although there were no significant differences in completion time or errors (incorrect sorts) across the groups, there was a significant positive correlation between time taken and number of errors ($r = .636$). Additionally, one participant who had suffered multiple concussions took both a significantly longer time than the rest of the population (382 sec vs. $M=119.26$ sec, $SD=69.817$ sec) ($p<0.005$) and had a greater number of errors (56 vs. $M=8.05$, $SD=8.533$) ($p<0.005$).

2:30-2:45. The Effect of background Music on Task Performance
Devin Kelly, Kristen Lake, Patricia Livengood, Ellie McManus
DeSales University
Faculty Sponsor: Dr. Sarah Starling
The current work explored whether background music has an effect on task performance. The participants were thirty-six undergraduate students; twelve per condition. They were asked to complete a word search within ten minutes while in one of three conditions: working in silence or while listening to instrumental or lyrical music. The lyrical song was “Wake Me Up” by Avicii, while the instrumental piece was “Wake Me Up” as performed by the Vitamin String Quartet. The number of words successfully located was recorded. Although participants in the silence group located fewer words ($M=16.33$) than the instrumental ($M=20.5$) or lyrical ($M=20.75$) groups, a one-way ANOVA found this not to be significant. Other factors such as music preference, whether participants studied with music, and previous music training, were also found to be not related to task performance. This demonstrates that music did not affect task word search performance.
1:45-2:00. Does Music Make You Attractive?
Anthony Michael Vonelli, Kayla Bolza, Kayla Hochstrasser, Jennifer Santiago
DeSales University
Faculty Sponsor: Dr. Sarah Starling
We examined if the genre of music an individual is listening to influences their perception of others. In a within subjects design, participants saw 90 faces while listening to one of three types of music: heavy metal, pop, and instrumental. On a scale from one to ten, participants rated the attractiveness of each face. Based on literature showing that music can influence our thoughts, we predicted that the heavy metal music would cause the lowest ratings, and the pop music would produce the highest ratings. A repeated measures ANOVA, however, found that the music played did not have an effect on an individual's rating of appearance. The individuals did, however, rate themselves higher than the faces they viewed ($p = 0.040$) and higher than average overall on the rating scale ($p = 0.012$). This suggests that although music might not influence a person's perception of others, people tend to find themselves more attractive than others.

2:15-2:30. Professors’ Perception of Students Based on Clothing
Christina Calvano, Lacey Berger, Victoria Gaffney, James Herrighty
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
The purpose of this research was to evaluate the effect a student’s outfit/style choice had on the perception of college professors. This study was composed of an online questionnaire showing images of students wearing different outfit styles, such as business, preppy, casual, and lazy. To prevent any bias, the faces of the students were cut out of the images and all students were Caucasian. The participants included 17 college professors: 9 women and 8 men, between the ages of 24-74. Of these professors, 9 were from the department of Liberal Arts and Social Science, and 8 were from the department of Natural Sciences. Our results showed that there was a significant difference in professors’ perceptions of students based on their outfit choice ($p = .013$). This then shows that the outfit choices of students do impact their professor’s perception of them.

2:00-2:15. Individual and Collective Body Type Preferences among Male and Female College Athletes
Meagan Gatley, Devin Clark, Thomas Steiner, Dylan Marsh
Ursinus College
Faculty Sponsor: Dr. Kneia DaCosta
This paper shares preliminary findings from a qualitative research study on college athletes, body objectification and social pressure. We conducted a series of seven focus groups (three woman's and four men's sports team) with a total of 43 participants. Each participant was asked to complete a pre-survey which involved rating a brief set of images containing male and female body types. This same sheet of images was re-introduced toward the end of interview as a stimulus for discussion. Transcriptions and survey responses were used to investigate correspondence between private attitudes and in-group responses. Using a priori codes based upon previous studies, themes within and across the in-group survey discussions were identified. The interview process also allowed us to assess social pressure, both in direct and indirect ways. Moderate differences were observed across groups.
1:45-2:00. The Effect of Number of Siblings on the Social Interaction of Children
Emily Roebuck, Amanda Miller, Tiffany Pujols, Rebecca Moyer
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
This study explored the relationship between the number of siblings and the levels of aggression and loneliness in children. Thirty parents who have children between the ages of 5 to 12 years old participated in the study. Questionnaires were distributed that asked for the demographics of the family and two tests that evaluated the levels of aggression and loneliness of their children. Results showed no statistically significant correlation between number of siblings and level of loneliness in children ($p = .953$). There was also no statistically significant correlation between number of siblings and level of aggression in children ($p = .955$). Based on the responses from parents, the number of siblings that the children have does not correlate with their levels of loneliness nor aggression.

2:00-2:15. First Impressions and Physical Appearance
Erica Allen, Kimberly Schoenberg
Muhlenberg College
Faculty Sponsor: Dr. Connie Wolfe
The "what is beautiful is good" stereotype states that we attribute socially desirable characteristics to physically attractive individuals. The "mean girl" effect refers to the tendency to attribute negative personality characteristics, such as exclusivity and deceptiveness, to highly attractive women. Past research indicates that people also attribute certain personality characteristics based on how sexually mature a woman appears, such that women who appear more "babelfaced" tend to be perceived as more honest and naive. The present study explores how these two dimensions of physical appearance (attractiveness and maturity) together influence perceptions of social aggression. We hypothesize that highly attractive women will be perceived as more socially aggressive. Additionally, we hypothesize that women who score high in babelfacedness will be perceived as less socially aggressive. We also anticipate an interaction such that women who score high in physical attractiveness and low in babelfacedness will be perceived as the most socially aggressive.

2:15-2:30. The Effect of Text messages on Self-Esteem
Susan McEwan, Briana Hyndman, Courtney Minto, Tessa Logan
DeSales University
Faculty Sponsor: Dr. Boyce Jubilan
This experiment was conducted to evaluate whether receiving daily complimentary text messages could increase a person’s self-esteem. Thirty-eight college student volunteers were requested to complete the Rosenberg Self-Esteem Scale. They were sent 14 text messages over a 2-week time period that contained 7 different compliments. After 2 weeks, participants were given another Rosenberg Self-Esteem Scale in order to find out whether their self-esteem increased after receiving the compliments. A mixed factor ANOVA was used to evaluate the data. There was no significant interaction between gender and change in self-esteem scores ($p = .07$). However, complimentary text messages significantly increased self-esteem in the participants ($p = .001$). Gender alone also showed a significant factor in this study ($p < .0005$). Complimentary text messages indeed increased self-esteem in the recipients.
Poster 1. Cost-effectiveness of stand-alone lateral lumbar interbody fusion (LLIF) versus Transforaminal lumbar interbody fusion (TLIF) for degenerative spondylosis with low back and leg pain over 2 years

Gurpreet Surinder Gandhoke, MD; David Michael Panczykowski, MD; Christopher Michael Bonfield, MD; Ramesh Grandhi, MD; Zachary Tempel, MD; Eddie Shin; Yue-Fang Change, PhD; David O. Okonkwo, MD, PhD; Adam S. Kanter, MD
University of Pittsburgh - Pittsburgh Campus
Faculty Sponsor: Dr. Jamila Bookwala
No studies have compared the health care costs associated with Lateral Lumbar Interbody Fusion (LLIF) and Transforaminal Lumbar Interbody Fusion (TLIF). We sought to calculate the incremental cost-effectiveness ratio (ICER) and thereby the difference in the mean total cost per Quality Adjusted Life Year (QALY) gained for LLIF versus TLIF done at one level for the treatment of degenerative spondylosis. We also report on the patient reported outcome measures at 2 year follow up. 29 patients undergoing one level stand-alone LLIF and 45 patients undergoing one level TLIF for degenerative spondylosis with low back and leg pain were included. All cost from diagnosis to most recent follow up for every patient was available in the same data bank from a single hospital. Total cost to the third-party payor for all back related medical resource use from the time of diagnosis until 2 years after surgery was calculated. QALYs were calculated from EQ-5D. EQ-5D scores were collected in an unbiased manner by a non-clinical person. Difference in mean total cost per QALY gained for TLIF minus that for LLIF was assessed as the incremental cost-effectiveness ratio (ICER: Cost TLIF - Cost LLIF/QALY TLIF – QALY LLIF). Significant improvement was observed at latest follow up after LLIF and after TLIF for SF36PCS, SF36MCS, ODI, VAS BP, VAS LP and EQ-5D. ICER calculations revealed similar mean QALYs gained (0.34 for TLIF and 0.31 for LLIF). Mean total cost of TLIF and LLIF was $32,870 and $31,998 respectively. Though the cost and EQ-5D between the 2 groups were not statistically different, the ICER ratio estimated that TLIF surgery costs $29,066 to provide one additional QALY. The cost effectiveness of TLIF and LLIF are similar. Currently, the reasonable accepted cost-effectiveness threshold in the US is approximately $100,000/QALY. Based on the ICER in our pilot analysis TLIF surgery cost $29,066 to provide one additional QALY.

Poster 2. Expression pattern of the Hox gene Antp in the Drosophila postembryonic ventral nervous system

Ginna Freehling
Bucknell University
Faculty Sponsor: Dr. Elizabeth Marin
Hox genes provide positional information for structures along the anterior-posterior (AP) axis of animals. In Drosophila, the Hox proteins determine segment-specific appendages such as antennae (head) and wings and legs (thorax). Mutations in these genes transform one body part to another in a different segment; for example, loss of Ultrabithorax (Ubx) function creates duplicate wings by converting the third thoracic segment to the second, while ectopic expression of Antennapedia (Antp) in the head transforms the antennae to legs. In the postembryonic VNS of Drosophila, Antp is broadly expressed in the thorax but remains mostly undefined. Neuronal lineages are groups of neurons descended from a neuroblast (NB), which are arranged in a stereotyped array. Although the same lineages are initially present within all of the thoracic segments, the morphology and survival of each can differ along the AP axis. To determine how Antp can influence this segment-specific morphology, we must first determine where it is expressed, including in cells that undergo cell death. By blocking cell death with the dronc- mutation and staining tissues with an antibody to Antp, we can image the lineages using a confocal microscope to obtain the full expression pattern of Antp.

Poster 3. Cell transfection by adeno-associated viral vector in the rat brain

Laura Kanz, Courtney Corbitt and Nicholas Boulis
Widener University
Faculty Sponsor: Dr. Cary Leung
Gene therapy, the delivery of therapeutic DNA, is being sought as a potential treatment for diseases that currently have no cure. In particular, patients with diseases of the nervous system have very few treatment options. In order to test the safety and efficacy of using viral vectors as a treatment for nervous system disorders, we gave unilateral injections of adeno-associated viral vector serotype 9 containing green fluorescent protein (AAV9-GFP) into the lateral ventricle of rats. Rats were given a high, medium or low dose of AAV9-GFP. No negative behavioral effects were detected. Tissue analysis revealed that AAV9-GFP transfected neurons but not astrocytes throughout the cortex, hippocampus, and other limbic regions. We are currently trying to identify other cell types transfected by the virus in these regions, including the cerebellum.
Poster 4. The effects of prenatal ethanol exposure on corticothalamic neurons using a mammalian model
Kayla Waits and Samantha White
Ursinus College
Faculty Sponsor: Dr. Carla Faiver
Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term that describes abnormalities including developmental problems in sensation, perception, learning, and behavior. Effects of prenatal ethanol exposure on corticothalamic neurons were studied because these neurons regulate responses to sensory information. Swiss Webster mice received a high dose of ethanol (4.35 g/kg) or phosphate buffered saline (control) via intraperitoneal injection on gestational days (GD) 12.5, 13.5, and 14.5. This correlates to the second trimester in human gestation when corticothalamic neurons develop. To identify the neurons being generated, bromodeoxyuridine was administered on (G) 12.5. Corticothalamic neurons were identified by Tbr1 immunostaining in postnatal day 0 (P0) brain sections. Binning analysis of Bromodeoxyuridine and Tbr1 immunostaining revealed neurons born on GD 12.5 were located in the deep layers of the cortex as expected in control and ethanol brains. In ethanol exposed brains, there were differences in the location of BrdU and Tbr1 immunostained neurons in the cortex with a possible increase in neurons in the deep layers and decrease in the upper layers. The changes observed in the location of corticothalamic neurons as a result of ethanol exposure may account for the altered sensation and perception in FASD.

Poster 5. Co-localization of nitric oxide synthase with PSD-95 and RT-97 in the pre- and postsynaptic membranes
Thomas Huntley-Loehr
Lehigh University
Faculty Sponsor: Dr. Jennifer Swann
The magnocellular division of the medial pre-optic nucleus (MPN mag) plays a critical role in male sexual behavior in Syrian hamsters. It is hypothesized that Nitric Oxide Synthase (NOS) is found through the postsynaptic membrane as it increases in the MPOA of experienced males while producing nitric oxide (NO). 1 Identifying exact positions of NOS is important, as nitric oxide synthase is an enzyme that catalyzes the reaction producing NO before evoking dopamine, a neurotransmitter known to influence sexual activity. The location of NOS is also important because of its sexually dimorphic properties with NOS puncta being in greater number in males. The objective is to locate (NOS) within the pre- and postsynaptic vesicles of the MPN mag by co-localizing NOS with RT-97 and Postsynaptic Density Protein-95 (PSD-95) as the axonal and dendritic cellular markers, respectively. There was faint co-localization between NOS and RT-97 of the MPN mag and no co-localization found in the post-synaptic with PSD-95, ultimately disproving the hypothesis. NO readily diffuses across all membranes and further research may be conducted to confirm the findings in addition to determining whether or not NO acts pre- and post-synaptic across.

1 Dominguez, JM, and EM Hull.

Poster 6. Criteria and visual processing of images to determine a stranger’s sexual orientation using Tobii remote eye-tracker.
Andrew Giachetti, Cason Walker, Abby Kalkstein and Emily Pellowe
Ursinus College
Faculty Sponsor: Dr. Brenda Lederach
Throughout the course of an ongoing, multi-phased experiment the components and properties of the social phenomenon of GAYDAR, the ability to accurately discern an individual’s sexual orientation from visual cues, was examined. Phase 1 of the experiment tested for differences in accuracy of GAYDAR between the genders and/or sexual orientations of the participants. Participants rated full-length front and back images of heterosexual and non-heterosexual individuals with whom they have had zero acquaintance after a brief exposure to image. Across all participants general accuracy was found to be significantly greater than chance, gender and orientation did not have a significant impact on accuracy, and accuracy on full-length back images was significantly greater than front images. Phase 2 (currently in progress) of the experiment involved using more standardized images as well as the introduction of facial images and eye-tracker software. Accuracy was examined in the same manner as phase 1. In addition, patterns of eye movements, hotspots of attention and focus, differences in the number of views of separate areas of interest on full-length front and back images were recorded and examined for each participant. Inferences were also made about time and confidence of the decision making of participants related to patterns of eye movement. Our initial results show that when viewing full-length front and back images participants’ eye movement patterns demonstrated a preference for the left side of the medial line of the individual in the image suggesting possible right-hemisphere processing. In addition the face was a hotspot of attention on full-length frontal images and the back of neck on back images. Facial images showed a preference for the eyes and nose of the individual.

Poster 7. The Autism Spectrum Quotient: A clear predictor of success on the Raven’s Advanced Progressive Matrices?
Emily Black, Jennifer Jones, Jaclyn Lloyd, Linda Muller, Katherine Williams, and Ryan March
Ursinus College
Faculty Sponsor: Dr. Jennifer Stevenson
The Autism Spectrum Disorder is a developmental disorder characterized by atypical social interactions and communication, and intensely detailed focus. Individuals on the autism spectrum tend to excel on visual-spatial tasks, such as the Raven’s Progressive Matrices. The current study investigated whether neurotypical individuals with a high number of autistic traits score higher on the Raven’s Progressive Matrices than neurotypical individuals with a low number of autistic traits. We hypothesized that a relationship between a constructive matching method, measured by toggle score and the ratio of fixation time on the pattern versus the solution, and accuracy on the Raven’s Progressive Matrices would be observed. Thirty-six undergraduate students selected based on the score on the Autism-Spectrum Quotient (AQ), a non-diagnostic measure of autistic traits, completed the Raven’s Progressive Matrices while their eye movements were monitored using an eye-tracker. Analyses using reaction time and eye movement patterns show partial support for each hypothesis.
Poster 8. Effect of autistic traits on face processing strategy when determining sexual orientation
Linda Muller
Ursinus College
Faculty Sponsor: Dr. Jennifer Stevenson
Examining the degree of autistic traits expressed in neurotypical individuals can provide insight into the relationship between autistic traits and Autism Spectrum Disorder (ASD). Research has suggested that individuals with ASD spend less time looking at the eye region of faces and use more featural than configural processing strategies when viewing faces compared to their neurotypical counterparts. The purpose of this study was to determine whether these effects are seen in neurotypical individuals expressing many autistic traits when given the task of determining sexual orientation of unknown faces. The Autism-Spectrum Quotient (AQ) was administered in order to determine degree of autistic traits exhibited by participants. There was a significant interaction between sex and group on accuracy. No differences were seen between the high AQ and low AQ group on accuracy, fixation count, or fixation duration on the eye, nose, and mouth regions when averaged across trials. However, on the first and second trials, the low AQ group looked significantly more at the mouth region than the high AQ group. These differences disappeared by the end of the task, suggesting a possible shift in face processing strategy within the low AQ group.

Poster 9. Are you smarter than a mouse?: Comparison of adults, children, and mice in virtual and physical Hebb-Williams maze tests
Jessica Cysner and Li Guo
Lafayette College
Faculty Sponsor: Dr. Lisa Gabel
Maze learning has been used as a measure of spatial intelligence for decades. The Hebb–Williams maze, a type of visuo-spatial task, consists of twelve standardized problems that vary based on difficulty level and the type of learning and memory needed to correctly solve the maze. These mazes have been used to examine spatial learning abilities across a wide range of species including rats, cats, rabbits, ferrets, mice, monkeys, and even humans. Research has demonstrated that human performance on a virtual Hebb-Williams maze is statistically similar to problem solving skills employed by mice (Shore et al. 2001). More recently, a study demonstrated that performance on a virtual Hebb-Williams (HW) maze of individuals affected by Fragile X Syndrome was similar to animal models of the disorder using a physical version of the HW mazes (McLeod et al. 2009). However, it is unclear whether different virtual environments will affect human performance on this maze task and therefore influence the ability to translate the results generated between humans and animal models. Our work examines the performance of children (ages 8-12) and adults (ages 18-22) on a virtual Hebb-Williams maze task utilizing different virtual environments. We also examine the influence of different graphical representations of the HW mazes on performance in a virtual environment in comparison to C57BL6/J mice completing a physical version of the HW mazes. Finally, we look at the effects of two distractor tasks—specifically, a New York Times crossword puzzle versus watching a clip of the movie "Despicable Me"—on college students’ ability to learn and navigate through a virtual model of the Hebb-Williams maze. These distractor tasks were presented in between trials of different maze configurations. The results show no significant difference between effects of two distractor tasks on maze performance. Our data also suggest that virtual environment has no effect on college students’ performance in the maze tasks, implying that the virtual environment is analogous to the physical one used by mice.

Poster 10. Using spectral analysis and event-related potentials to identify cognitive deficits within concussed student athletes
Chan Hee Lee, Angelo Montenegro and Samir Shah
Ursinus College
Faculty Sponsor: Dr. Joel Bish
Concussions can be the result of blunt force or blow to the head. These often cause changes in the chemical balance within the brain which in turn affect the behavior and cognitive ability of affected individuals. The resulting impairments may differ in duration from a few hours to potentially years. This study used electroencephalography (EEG) as well as cognitive/behavioral testing, to identify potential differences between students with a history of concussion(s) and students without a history of concussion(s). Using event-related potentials and spectral analysis, the levels of brain bands (alpha, beta, theta, delta) over frontal and parietal electrode sites of the brain were evaluated. Significant decreases in average band powers were observed in the concussed group and important trends in other bands were assessed. Using the EEG as a sensitive measure may help us determine electrophysiological markers that persist well after external physical symptoms may have subsided.
Poster 11. Characterizations of sexual dimorphic projections from the magnocellular medial preoptic nucleus

Danielle Sin
Lehigh University

Faculty Sponsor: Dr. Jennifer Swann
Sexual dimorphisms are present in almost all animal species, ranging from phenotypic characteristics to neurological differences in brain areas. In male and female Syrian hamsters, the neurological sexual dimorphisms are suggested to be responsible for different copulatory behavior necessary for reproduction. Pheromones secreted by the female Syrian hamster are detected by the male olfactory bulbs. The chemosensory signals are sent to the preoptic area, which is a site of pheromone and hormone integration. The magnocellular division of the medial preoptic nucleus (MPN mag) is a subdivision of the medial preoptic area (MPOA) in the Syrian hamster. The MPN mag plays a critical role in male typical sex behavior and lesions to this nucleus completely eliminate copulation in the male hamster and have no effect on the female. Previous studies have shown the MPN mag to be sexually differentiated in its neuronal characteristics. However, the neuronal efferent projections from the MPN mag have yet to be determined as sexually dimorphic. Determining if the projections are sexually dimorphic, using DiI to trace the pathway the neurons take, would aid in explaining differences in sex typical behavior in the Syrian hamster.

Poster 12. Investigation of visual learning in wild-type and presenilin mutant Drosophila melanogaster larvae

Anika Riaz
Moravian College

Faculty Sponsor: Dr. Christopher Jones
Mutations in the Presenilin (Psn) genes confer susceptibility to Alzheimer disease in elderly human populations. The Psn genes have been shown to be homologous in the Drosophila melanogaster animal model, an organism used in genetic research. In this study associative visual learning was tested in Drosophila melanogaster larvae, with gustatory reinforcements, in order to measure learning in wild-type larvae and Psn mutant larvae. Larvae underwent two reciprocal training regimes: Dark+/Light- or Dark-/Light+, where they received fructose, the positive reinforcement (+), and sodium chloride, the negative reinforcement (-), in either light or dark. Moreover, larvae were trained in different timing conditions, exposed to the visual stimulus at different frequencies. Under these conditions, wild-type and Psn mutant larvae have shown associative learning.

Poster 13. Precision grasping behaviors in young adults and children

Christopher Kelbaugh and Michael Leff
Lafayette College

Faculty Sponsor: Dr. Luis Schettino
The behavior of precision grasping in a balancing task was studied in college students. The moment of contact with the object to be balanced was recorded to observe how grasps were adapted in response to perceived task difficulty. The students observed utilized a variety of grasps in order to successfully complete the balancing task, and were more likely to change grasps within the same difficulty level when having failed at previous trials. These results show that young adults possess both the planning ability and behavioral repertoire necessary for fine-tuned grasp adjustment. In a subsequent ongoing study, we hope to determine whether these behaviors are also present in child participants, and when during development they are acquired.

Poster 14. Effects of various pharmacological agents on pain tolerance in lynx1KO mice through manipulation of nicotinic acetylcholine receptors

Kasarah Ackerman, Carly Garrison and Sam Eichelberger
Lehigh University

Faculty Sponsor: Dr. Julia Miwa
Issues with limited analgesics could be resolved through the use of nicotinic acetylcholine receptors (nAChRs). Agonists of nAChRs in the brain show promise for increasing pain tolerance. Nicotine, an agonist, binds to nAChRs and increases receptor functioning which stimulates the release of the neurotransmitter acetylcholine. At higher doses of nicotine, the increased release of acetylcholine reduces pain causing nicotine to act as a sedative when exposed to discomfort. However, the lynx1 protein coded for by the lynx1 gene also binds to nAChRs altering agonist sensitivity and preventing the efficient binding of nicotine. The presence of the lynx1 proteins should reduce the analgesic effects when nicotine binds to nAChRs because nicotine can no longer activate nAChRs as well as without the presence of lynx1. We tested this through the use of genetically modified mice lacking the lynx1 gene. Upon being injected with nicotine, mice lacking the lynx1 gene (lynx1KO) should have greater pain tolerance than lynx1WT mice when exposed to minor heat pain. Nicotine was then coupled with Mecamylamine and Hexamethonium to determine if nAChRs act centrally and/or peripherally. Nicotine was then paired with methyllycaconitine and DhβE to determine if its effects would be eliminated in the presence of certain agents.
Poster 15. Reaction of the premotor ventral region to novel objects
Lara Ruggerio and Madeline Friese
_Lafayette College_

**Faculty Sponsor:** Dr. Luis Schettino

The pathway that processes the information for reach-to-grasp movements is a dorsal pathway connecting the intraparietal sulcus (IPS) and the premotor ventral region (PMv). To grasp an object, we use our visual cortices and systems to extract the features of the object we need to understand to interact with it, including the size, shape, and orientation. The analysis of the features is thought to occur in the IPS, and then is sent to the PMv for its use in the selection in the correct motor program for the execution of the music. Established motor programs to choose from are available in the PMv. When we encounter objects that we have never interacted with before, a new movement must be planned instantaneously, instead of simply recalling an established motor program.

In an effort to test this disparity between using established and new motor programs, EEG will be recorded from subjects as they reach for a series of novel and common objects. We believe that the EEG from PMv should show an increase in high frequencies, indicating information processing in the region as new motor programs are defined in response to novel objects.

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Poster 16. Androgens and their role in regulating TrkB receptors in the MPNmag of Syrian hamsters
Lara Signe Hoover and Joe C. Brague
_Lehigh University_

**Faculty Sponsor:** Dr. Jennifer Swann

In most species animals show sex specific mate preference such that males prefer females and females prefer males. Syrian hamsters show a strong sex difference. Neurological changes between the sexes have been found in the magnocellular medial preoptic nucleus (MPNmag), a sub-region of the medial preoptic area. Recent research has found evidence of steroidal elicited differences in synaptic size in the MPNmag between the two sexes. This study will explore if Tropomyosin-Receptor Kinase-B (TrkB), a receptor for Brain Derived Neurotrophic Factor (BDNF), is connected with the neurological changes between male and female hamsters. BDNF is an important growth factor for survival and differentiation in the brain. By labeling intact and testosterone treated males and females for TrkB receptors, we will determine if testosterone regulates the presence of growth factor receptors in the MPNmag, underlying the sexual differentiation in mating behavior. This could assist in gaining a better understanding of what causes the differences in hormone mediated behaviors between male and female Syrian hamsters.

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Poster 17. The age of emergence of aggressive behavior in a cichlid fish model is correlated with brood size
Jocelyn R. Polan
_Cedar Crest College_

**Faculty Sponsor:** Dr. Audrey J. Ettinger

Rocio octofasciata cichlids (common name: Jack Dempsey cichlids) are a useful animal model for studies of aggressive behavior. To better understand the factors that influence the development of behavior in this species, we analyzed how social group size affected the age of emergence of aggression in Jack Dempsey fry. Our hypothesis is that a smaller brood size or social group will correlate with an earlier emergence of aggressive behaviors. To investigate this question, broods of different sizes were observed for an equal amount of time over several weeks, and the total number of aggressive behaviors displayed was tallied. Five fry from a younger brood showed more aggression than those from an older and larger brood. To control for age difference, five individuals from the larger group were isolated and observed in their own tank environment to ask whether their behavior diverged from the remaining larger group (approximately 50 fry). Thus far, the older fry studied in isolation appear to display a higher frequency of aggressive behaviors than their siblings in the larger group. Our preliminary results thus suggest that brood size is a determinant of the age of emergence of aggressive behavior, with smaller broods displaying aggression earlier.

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Poster 18. Investigations of maternal and paternal impacts on offspring aggression
Michael Stephenson and Rebecca McCulloch
_St. Joseph’s University_

**Faculty Sponsor:** Dr. Elizabeth Becker

Recent evidence in the aggressive and biparental species, Peromyscus californicus, indicates an importance of paternal care in the expression of offspring behavior. Specifically, retrieval by a parent (removal of a pup from a potentially dangerous situation outside of the nest) influences the development of aggressive, and parental behaviors in male offspring. Although the overwhelming majority of research examining parental effects on offspring development has focused on mothers, to our knowledge, comparisons between maternal and paternal effects have yet to be fully explored. To directly test for differences between maternal and paternal care, in the current study we experimentally increased maternal or paternal retrievals, and examined adult offspring aggressive and parental behavior. Randomly selected male offspring were subjected to one of four treatment manipulations during the early postnatal development: maternal retrieval, maternal sham retrieval, paternal retrieval, and paternal sham retrieval. At five months of age, focal males were then allowed to sire a first litter so that the presence of their offspring could be assessed as a modulator of paternal aggression in a traditional resident intruder paradigm. Preliminary analyses reveal the mere proximity of offspring drastically increases a father’s aggression.
Poster 19. Reactive change in digit speed upon object contact
Larry Sanchez
Lafayette College
Faculty Sponsor: Dr. Luis Schettino
The recognition of objects through touch has been studied for the last 2 decades. Experiments used to involve mostly the thumb and index but with new techniques it is possible to study the whole hand and researchers have started to find interesting patterns. In this study we employed an electrical mechanism to determine time of digit contacts with the target object. This digit contact system was paired with motion tracking equipment to measure position of each finger in time. Our results indicate that, under our task conditions, subjects grasp the objects in a specific pattern where the latency of the 2nd to 1st finger to make contact is significantly larger than the latency between the 3rd and 2nd finger and between the 4th and 3rd finger. We have also found that a percentage of subjects show and increase in velocity of the 3rd and 4th finger after the 2nd finger touches the object, which would explain the pattern presented previously. This would imply a form of feedback control at the spinal cord following the 2nd contact that modifies the velocities of the remaining digits.

Poster 20. lynx gene control over plasticity: NKCC1 and KCC2 expression ratios during development in mice
Courtney Meyer, Katherine Oliver, Carly Garrison and Samantha Eichelberger
Lehigh University
Faculty Sponsor: Dr. Julie Miwa
Brain plasticity is the biological basis for learning. Neural plasticity enables the brain to grow and develop, forming new connections in response to external stimuli. Many neurological pathways influence this critical process, including the cholinergic system. A prominent modulator of the cholinergic system is lynx1, a protein expressed at the close of the critical period. It acts by binding to nAChRs within the cholinergic system, and inhibits synaptic plasticity and the ease of the brain to learn and develop. Though it is known that lynx acts a molecular brake on plasticity, there is still much to be discovered regarding the biological mechanisms it employs to do so. Two neuronal co-membrane transporters have been associated with the regulation of neuronal growth and regeneration. Heightened expression of the protein NKCC1 has been associated with increased neuronal growth. Conversely, higher expression of the protein KCC2 has the opposite effect, suppressing neuronal growth and regeneration. Due to their inverse functions, it has been hypothesized that their concentrations show a reciprocal relationship over the course of development. This experiment uses western blot analysis of NKCC1 and KCC2 at various intervals in development in lynx1 mice to study this relationship of their expression. This project has implications for treating neurodegenerative disorders if the neurological mechanisms underlying the changing levels of plasticity observed over the course of development can be better understood.

Poster 21. Polyphenol treatment for Parkinson’s disease in a LRRK2 Drosophila melanogaster model: targeting the intersection of environmental and genetic causes
Rose Bayer
Lafayette College
Faculty Sponsor: Dr. Elaine Reynolds
Parkinson’s disease (PD) is a chronic, neurodegenerative disorder that affects 4 to 5 million people worldwide (Michael J. Fox Foundation, 2012). PD involves motor impairments due to dopaminergic neuronal death in the substantia nigra pars compacta, and has both environmental and genetic causes. Thus far, research has shown that reducing environmentally triggered reactive oxygen species levels, decreases parkinsonian symptoms in several animal models (Bonilla-Ramirez, Jimenez-Del-Rio and Velez-Pardo, 2011). Several genetic mutations including LRRK2 (Leucine-rich repeat kinase 2) that lead to impaired mitochondrial function have shown impacts on PD onset (Guo, 2012). We used a LRRK2 knockout model in Drosophila melanogaster to study the role of mitochondria in PD development, as an interface between genetic and environmental factors. LRRK2 knockout flies generated using an antisense construct, expressed in brain dopaminergic neurons, were fed an antioxidant solution of polyphenols (propyl gallate, epicatechin, gallic acid, epigallocatechin gallate) every 5 days. Survival numbers, climbing ability, and dopamine immunohistochemistry were performed on all flies at 5, 15, 30 and 50 days postecision; a cytochrome oxidase assay was performed at 15 days. We hypothesized that polyphenol fed flies would have increased lifespan, decreased motor impairments, decreased dopaminergic degeneration and decreased mitochondrial dysfunction, as compared to controls.

Poster 22. Dopamine receptor activity provoked by neurotransmitter release in the medial preoptic area and the behavioral implications of D2 receptor location
Steven Manobianco
Lehigh University
Faculty Sponsor: Dr. Jennifer Swann
The glutamate and nitric oxide (NO) evoked release of dopamine (DA) in the medial preoptic area (MPOA) of the hypothalamus is critical to the initiation and propagation of male sex behavior. Increases in NO concentrations by nitric oxide synthase in the MPOA are catalyzed by gonadal hormones and glutamate input from the medial amygdala (MeA) and the bed nucleus of the stria terminalis (BNST), causing a rise in MPOA DA release that directly correlates with sexual behavior. While the effects of DA in the MPOA on sexual behavior are known, it is not currently understood which DA receptors are being explicitly acted upon during this phenomena. By determining the location of the DA receptors that are stimulated during this period of increased neurotransmitter production and secretion, the neurological basis of observed male sex-specific behavior can be better understood. Tissue samples from both male and female Syrian hamsters will be immunolabeled with D2 receptor antibody to determine receptor location. Analysis of the labeled tissues in conjunction with knowledge of the various projections of the MPOA will determine the receptors most likely involved in the observed sexual behavior and the behavioral implications of the location of these receptors.
**Poster 23. Are androgen receptors found on axon terminals in the preoptic area?**  
Nigel Muhammad  
*Lehigh University*

**Faculty Sponsor**: Dr. Jennifer Swann  
Androgen Receptors (AR) play an imperative role in testosterone activation and allow for transport of testosterone from the cytosol to the nucleus of the cell. For this reason, ARs are generally found in the cell body of cells and neurons. However, preliminary research shows novel findings of ARs in axon terminals of the brain. The magnocellular subdivision of the medial preoptic nucleus (MPN mag) is one of the areas with high concentrations of ARs. The MPN mag plays a critical role in male sexual behavior possibly by integrating steroid activation with pheromonal input from the medial amygdala (MeA). To determine if androgen receptors are also on terminals from neurons in the amygdala, an anterograde tracer was sterotaxically inserted into the MeA. Immunofluorescence was used to colocalize the AR antibody and the anterograde tracer within terminals. The colocalization of these two will confirm that ARs are present in the axon terminals of the MPNmag.

<table>
<thead>
<tr>
<th><strong>Education and Outreach</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poster 24. The potential of our actions: 2014 brain awareness outreach at Moravian College and across the Lehigh Valley</strong></td>
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<tr>
<td><strong>Adam Ghoweri and Brian Welsko</strong></td>
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<tr>
<td><strong>Moravian College</strong></td>
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**Faculty Sponsor**: Dr. Cecilia M. Fox  
Brain Awareness Season is by far our busiest time of the year. Through many carefully planned events and activities offered throughout the Lehigh Valley, the Moravian College "Brain" Club actively works in cooperation with the Lehigh Valley SfN Chapter to promote an awareness of how the nervous system functions, advances in neuroscience research, and the importance of healthy living. Our outreach is not limited to a specific age demographic, as we strive to engage the community as a whole. Awareness certainly knows no limitations and we hope that this is reflected in our diverse range of events. We demonstrate neuroscience concepts as simplistic as teaching about the five senses with "Mr. Potato Head" and "Reflex/Sensory" testing. Alternatively, more advanced activities include learning about neuroanatomy to demonstrate some differences and similarities among mammals, investigating the impact of stroke in our Robbie the Raisin activity and demonstrating brain waves using a BIOPAC EEG system. This year our Brain Awareness Seminar and Film series focused on the theme of “Addiction”. We shared copious amounts of literature, hosted guest speakers, sponsored films, and provided fun activities at Moravian College as well as in the Bethlehem area. In addition, we also “galvanized” the Moravian faculty members with our “You’ve Been Sparked” campaign to raise money for the MaxLove Project. The MaxLove Project is a nonprofit organization that empowers families fighting childhood cancers, such as brain cancer and life-threatening conditions with whole-body wellness resources, education, and research. We also strengthened our advocacy efforts by coordinating an “Advocacy Day” at Moravian College as well as the other LVSfN colleges. This spring, we sent a strong and cohesive message to our representatives to seriously consider supporting scientific research! Overall, our outreach programs maintain an engaged undergraduate population as we strive to share our time and talents with our community.
Poster 25. Immunotherapy for Addictions: Ethical Implications
Brooke Drake, Amanda Trittenbach
*Muhlenberg College*

**Faculty Sponsor:** Dr. Jeffrey Rudski
Immunotherapy poses an innovative possibility for the future of addiction treatment. Such vaccinations would diminish the effects of drugs by decreasing their ability to cross the blood-brain barrier, making drug use less appealing. The introduction of immunotherapy for drug addictions in humans is becoming increasingly likely as animal trials of these vaccinations result in success. This innovative addiction treatment creates a variety of ethical and medical implications, which this study aimed to explore. Participants were asked questions regarding their views on the acceptability of immunotherapy, whether or not they felt it coercive, and how likely they would be to support public funding of such services based on different groups given immunizations. Results indicated immunizations for children and college students were least acceptable and supported, and seen as most coercive. Forced immunizations were more highly supported for welfare recipients.

Poster 26. Visual Processing in Individuals with Differential Autistic Qualities
Cheyenne Layman, Hayley O’Donnell, Rachel Philip, Guadalupe Quintana
*Ursinus College*

**Faculty Sponsor:** Dr. Joel Bish
Autism is a developmental disorder associated with atypical social communication. Individuals on the autism spectrum differ from typically developing peers in eye movements when viewing faces. Typically, autistic participants avoid the eyes of portrait images. This study used eye tracking software to examine the visual process of individuals with differing levels of autistic traits. The level of autistic traits was found by having the participants take the Autism Spectrum Quotient (AQ) where the higher the score on the AQ the more autistic traits the person possesses. The participant’s visual process was tracked while examining faces represented in photos, photorealistic paintings, and nonrealistic paintings. Moreover Photorealistic and nonrealistic paintings of landscapes were used to compare the visual process of art-trained participants versus non experience participants. Summary data revealed that individuals with higher degree of autistic traits spent less time focusing upon the eye regions of portraits.

Poster 27. Neurotic, Contentious, and Lonely! Differential vulnerability to cellphone relationship disruption
Lacey Evangelista, Allison Frymoyer, Gena Rodriguez, Heather Putnam
*Ursinus College*

**Faculty Sponsor:** Dr. Cathy Chambliss
This study examined the frequency of ignoring others during in-person encounters due to cellphone use, comparing low versus high scores on dimensions of neuroticism, contentiousness, and loneliness. It also assessed individual differences in annoyance with others’ attention to mobile devices and perception of empathy disruptions due to cellphone use. Neuroticism and contentiousness were associated with ignoring others due to mobile device use. More neurotic individuals may negatively interpret text messages, fostering urgency to respond. Alternatively, they may fear recrimination for not responding promptly. Contentious participants may respond to cellphones to provoke others during in-person encounters. Loneliness was associated with being bothered by others’ mobile device use and perceiving cellphones as interfering with empathy. Lonelier individuals may prize in-person opportunities and experience greater irritation when mobile devices interfere. Alternatively, higher loneliness may result from hypersensitivity to irritating behavior.

Poster 28. The Relationship Between Speech and Motor Development and the Number of Autistic Traits
Caitlin E. Lindley, Nicole M. Murlo, Jennifer L. Stevenson
*Ursinus College*

**Faculty Sponsor:** Dr. Jennifer L. Stevenson
Autism is characterized by challenges in communication, social interactions, and repetitive behaviors and interests. However, motor challenges are often also present in autistic individuals. This study seeks to identify the relationships between both percentage of motor milestones met and language quality with the number of autistic traits. Parents of 67 children completed two language questionnaires, followed by a retrospective phone interview on oral- and manual-motor development as well as two additional portions designed to assess autistic characteristics. Children with a community autism spectrum diagnosis met significantly fewer motor milestones and had significantly reduced language quality in comparison to non-autistic children. Furthermore, when looking at the entire sample, increased language and motor skills were related to decreased presence of autistic traits. Assessment of early motor skills may help to identify children at risk for an autism spectrum diagnosis.
**Poster 29. Event Gaps, Location-Updating Effect, Doorways, and the Serial Position Effect**  
Cody Hensley  
*York College of Pennsylvania*  
**Faculty Sponsor:** Dr. Joshua Landau  
We investigated the ability of people to retrieve information after walking through an event gap that was defined by a doorway and focused on whether this would have any effects on the serial position effect of memory. Time allowed for memorization was also examined. Participants were told they were participating in a memory task where they were to recall words displayed to them on a slideshow. Half of the participants stayed in the same room throughout, whilst the other half transitioned into a different room before the recall portion of the experiment. There was no main effect discovered for walking through a doorway or amount of time for memorization on the serial position effect. However, after the spatial shift caused by moving through a doorway, there was a marginal significance on the amount of words remembered between groups, indicating that items may be less available after transition through a doorway.

**Poster 30. Effect of Music on Visual Perception**  
Melissa Neustein, Sarah Villano, Sara Van Eerde, Chris Marsala  
*Muhlenberg College*  
**Faculty Sponsor:** Dr. Laura Edelman  
We wanted to see if music effects visual perception of a scene. We hypothesized that music that seems upbeat and cheerful would make the viewers perceive the scene as being happier, more positive, exciting, and interesting. Music that seems dull and slow would make the scene seem sad. The three groups were either shown the video clip with happy, sad, or no music. With sadder music, participants felt that the scene was sadder. There was a significant difference between the sad music and no music playing and between happy and sad music for ratings of happiness. There was no difference between happy and no music. With happier music, the participants felt that the scene was slightly more positive. With sad music, participants felt that the scene was less exciting. The type of music or no music at all did not influence how interesting the participants thought the scene was.

**Poster 31. The Effect of Weight Stigma on Impression Formation**  
Morgan Loeffler  
*Lafayette College*  
**Faculty Sponsor:** Dr. Jamila Bookwala  
Using Asch’s (1946) study on impression formation, and evidence showing weight stigma in society, this study uses the terms, “fat” vs. “thin,” to determine if weight acts as a central characteristic. The task required participants (N=97 undergraduates) to rate an applicant for a Resident Advisor position. I hypothesized a main effect for both gender and weight, where more positive impressions would be formed about men than women, and about “thin” individuals than “fat,” as well as an interaction effect between gender and weight where the “thin” male would result in the most positive impressions, followed by the “thin” female, the “fat” male, and then the “fat” female. Results showed a significant main effect of weight on athleticism, organization, happiness, attractiveness, and stability and a significant main effect for gender for emotionality and organization. Significant weight x gender interaction effects were observed for talkativeness and honesty, although simple effects tests were not statistically significant.

**Poster 32. How Music Moves You: Bopping and Bonding With the Beat**  
Andrea Cohen, Jonathan Ross, Nicole Roth  
*Muhlenberg College*  
**Faculty Sponsors:** Dr. Kathleen Harring & Dr. Laura Edelman  
The purpose of this study was to examine how synchronous movement affects group dynamics. Specifically, we are interested in how music and movement influenced the perceptions of group rapport and unity. Music and synchrony help to create a sense of common meaning among individuals (Wiltermuth & Heath 2009). Rapport and group unity are a product of this shared sense of common meaning, and they allow a group to form stronger bonds and act more collaboratively. We hope this study will help us understand how groups can form stronger bonds amongst members and thus function more efficiently.
**Poster 33. Effect of Musically-Induced Emotion on Conformity**  
Erica Allen, Erin Flaherty, Lindsay Hardenberg, Kelsey Henry  
*Muhlenberg College*  
**Faculty Sponsor:** Dr. Laura Edelman  
The present study looks at the effect of musically-induced emotion on conformity. To test this, participants were exposed to two-minute clips of affective classical music, either in a positive, negative or neutral tone. Participants then responded to grammar questions on response sheets in which three critical questions contained incorrect and unanimous answers from false previous participants, provided by the experimenters. Conformity was measured by whether the participants conformed to provided answers. Previous research indicates that positive mood is correlated with utilizing quicker, heuristic processing, which in turn lead to higher instances of conformity.

**Poster 35. Perceptions of Residential Advisors: Influences of Aversive Racism**  
Emily Blakeslee, Maria Lewis, Kendra Ivy, Leah Messler, Victoria Nicosia  
*Muhlenberg College*  
**Faculty Sponsor:** Dr. Connie Wolfe  
This research builds on the previous literature regarding aversive racism. Specifically, the effects of aversive racism on the perceptions of residential advisors’ (RAs) likability, expertise, and competency. A two by two factorial design was used in which the independent variables were race of RA (White or Black) and whether or not the RA made a mistake in handing out a punishment. A significant main effect was found for race on likability such that Black RAs were rated higher than White RAs; a similar main effect of race on expertise was approaching significance. Additionally, there was a significant main effect for the type of mistake for the expertise scale such that RAs that made a mistake were rated less favorably than RAs that did not; a main effect was approaching significance for the likability scale. There was no interaction between race and mistake for any of the dependent variables.

**Poster 34. Disability and Socioeconomic Status on Access to Resources**  
Dayna Kline, Rae Fishman  
*Muhlenberg College*  
**Faculty Sponsor:** Dr. Linda Bips  
Past research by Campen and Santvoort (2012) has shown that individuals with personal resources had higher wellbeing regardless of severity of disability and socioeconomic status. We examined if socioeconomic status and level of disability had an impact on access to resources. We hypothesized that people who have a severe disability will need more resources and people with high socioeconomic status, regardless of disability, will have more access to resources than those from low socioeconomic statuses. We found that individuals with disabilities who had a high personal/family income and a more severe disability had more access to resources. Specifically, those who were from a high socioeconomic status in combination with a more severe disability had more access to resources. This brings awareness of the need to help those with lower personal income and/or low severity of disability to gain access to and knowledge of resources.

**Poster 36. Microglial Response During Spinal Cord Regeneration in Axolots**  
Taylor Gload, Jared Bohrer, and Karch Connors  
*Ursinus College*  
**Faculty Sponsor:** Dr. Ellen Dawley  
A close relative of the tiger salamander, Abystoma mexicanum, commonly called the axolotl, possesses the capability to regenerate lost segments of its central nervous system (CNS) after injury. Microglial cells play a large role in the regenerative process, due to their pro-inflammatory and anti-inflammatory responses to synaptic plasticity, as well as their immediate migration towards the injury site after neuronal injury. After amputating the caudal part of axolotl tails, we used tomato-lectin to label microglial cells in the regenerating spinal cords. We compared microglial responses in axolotls of various ages, from larvae to full grown adults. Microglia appeared to migrate towards the central canal in the spinal cord after injury, leaving microglial processes and healing injury completely.
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kasarah Ackerman</td>
<td>19</td>
<td>Madeline Friese</td>
<td>20</td>
</tr>
<tr>
<td>Erica Allen</td>
<td>15,25</td>
<td>Allison Frymoyer</td>
<td>23</td>
</tr>
<tr>
<td>Sianta Anderson</td>
<td>13</td>
<td>Dr. Lisa Gabel</td>
<td>10,14,18</td>
</tr>
<tr>
<td>Dr. Kate Arrington</td>
<td>7</td>
<td>Victoria Gaffney</td>
<td>14</td>
</tr>
<tr>
<td>Alyssa Babecki</td>
<td>8</td>
<td>Dr. Gurpreet Gandhoke</td>
<td>16</td>
</tr>
<tr>
<td>Rose Bayer</td>
<td>21</td>
<td>Carly Garrison</td>
<td>19,21</td>
</tr>
<tr>
<td>Dr. Elizabeth Becker</td>
<td>20</td>
<td>Meagan Gately</td>
<td>14</td>
</tr>
<tr>
<td>Lacey Berger</td>
<td>14</td>
<td>Adam Ghoweri</td>
<td>22</td>
</tr>
<tr>
<td>Dr. Linda Bips</td>
<td>25</td>
<td>Andrew Giachetti</td>
<td>17</td>
</tr>
<tr>
<td>Dr. Joel Bish</td>
<td>18,23</td>
<td>Genesis Gomez</td>
<td>11</td>
</tr>
<tr>
<td>Emily Black</td>
<td>17</td>
<td>Taylor Gload Gload</td>
<td>25</td>
</tr>
<tr>
<td>Elizabeth Blaise</td>
<td>9</td>
<td>Dr. Ramesh Grandhi</td>
<td>16</td>
</tr>
<tr>
<td>Emily Blakeslee</td>
<td>25</td>
<td>Li Guo</td>
<td>18</td>
</tr>
<tr>
<td>Jared Bohrer</td>
<td>25</td>
<td>Patricia Halpin</td>
<td>13</td>
</tr>
<tr>
<td>Kayla Bolza</td>
<td>14</td>
<td>Rachel Hamilton</td>
<td>10</td>
</tr>
<tr>
<td>Dr. Christopher Bonfield</td>
<td>16</td>
<td>Lindsay Hardenberg</td>
<td>25</td>
</tr>
<tr>
<td>Dr. Jamila Bookwala</td>
<td>11,16,24</td>
<td>Dr. Kathleen Harring</td>
<td>12,24</td>
</tr>
<tr>
<td>Rachel Boone</td>
<td>11</td>
<td>Kelsey Henry</td>
<td>25</td>
</tr>
<tr>
<td>Nicholas Boulis</td>
<td>16</td>
<td>Cody Hensley</td>
<td>24</td>
</tr>
<tr>
<td>Joe Brague</td>
<td>20</td>
<td>James Herrifty</td>
<td>14</td>
</tr>
<tr>
<td>Dr. Amanda Brandone</td>
<td>7</td>
<td>Ellen Herschel</td>
<td>12</td>
</tr>
<tr>
<td>Catherine Buck</td>
<td>13</td>
<td>Kayla Hochstrasser</td>
<td>14</td>
</tr>
<tr>
<td>Dylan Burbee</td>
<td>10</td>
<td>Lara Signe Hoover</td>
<td>20</td>
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<tr>
<td>Christina Calvano</td>
<td>14</td>
<td>Thomas Huntley-Loehr</td>
<td>17</td>
</tr>
<tr>
<td>Dr. Cathy Chambliss</td>
<td>23</td>
<td>Briana Hyndman</td>
<td>15</td>
</tr>
<tr>
<td>Dr. Yue-Fang Change</td>
<td>16</td>
<td>Kendra Ivy</td>
<td>25</td>
</tr>
<tr>
<td>Devin Clark</td>
<td>14</td>
<td>Jennifer Jones</td>
<td>17,19</td>
</tr>
<tr>
<td>Janice Clawson</td>
<td>11</td>
<td>Dr. Boyce Jubilan</td>
<td>11,12,13,14,15</td>
</tr>
<tr>
<td>Andrea Cohen</td>
<td>24</td>
<td>Abby Kalkstein</td>
<td>17</td>
</tr>
<tr>
<td>Carol Colomer</td>
<td>11</td>
<td>Dr. Brian Kane</td>
<td>9</td>
</tr>
<tr>
<td>Karch Connors</td>
<td>25</td>
<td>Dr. Adam Kanter</td>
<td>16</td>
</tr>
<tr>
<td>Courtney Corbitt</td>
<td>16</td>
<td>Laura Kanz</td>
<td>16</td>
</tr>
<tr>
<td>Jessica Cysner</td>
<td>18</td>
<td>Shauna Kehoe</td>
<td>12</td>
</tr>
<tr>
<td>Dr. Kneia DaCosta</td>
<td>14</td>
<td>Christopher Kelbaugh</td>
<td>19</td>
</tr>
<tr>
<td>Dr. Ellen Dawley</td>
<td>25</td>
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<td>13</td>
</tr>
<tr>
<td>Brooke Drake</td>
<td>23</td>
<td>Dayna Kline</td>
<td>25</td>
</tr>
<tr>
<td>Brady Dubin</td>
<td>11</td>
<td>Kristen Lake</td>
<td>13</td>
</tr>
<tr>
<td>Dr. Laura Edelman</td>
<td>12,24,25</td>
<td>Dr. Joshua Landau</td>
<td>23</td>
</tr>
<tr>
<td>Samantha Eichelberger</td>
<td>19,21</td>
<td>Cheyenne Layman</td>
<td>23</td>
</tr>
<tr>
<td>Dr. Audrey Ettinger</td>
<td>20</td>
<td>Dr. Brenda Lederach</td>
<td>17</td>
</tr>
<tr>
<td>Lacey Evangelista</td>
<td>23</td>
<td>Chan Hee Lee</td>
<td>18</td>
</tr>
<tr>
<td>Natalie Evans</td>
<td>12</td>
<td>Michael Leff</td>
<td>19</td>
</tr>
<tr>
<td>Dr. Carlita Favero</td>
<td>17</td>
<td>Dr. Cary Leung</td>
<td>16</td>
</tr>
<tr>
<td>Dr. William Falla</td>
<td>9</td>
<td>Maria Lewis</td>
<td>25</td>
</tr>
<tr>
<td>Autum Fichter</td>
<td>11</td>
<td>Caitlin Lindley</td>
<td>23</td>
</tr>
<tr>
<td>Rae Fishman</td>
<td>25</td>
<td>Patricia Livengood</td>
<td>13</td>
</tr>
<tr>
<td>Erin Flaherty</td>
<td>24</td>
<td>Jaclyn Lloyd</td>
<td>17</td>
</tr>
<tr>
<td>Dr. Cecilia Fox</td>
<td>10,22</td>
<td>Morgan Loeffler</td>
<td>24</td>
</tr>
<tr>
<td>Ginna Freehling</td>
<td>16</td>
<td>Tessa Logan</td>
<td>15</td>
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<td>21</td>
<td>Emily Roebuck</td>
<td>15</td>
</tr>
<tr>
<td>Ryan March</td>
<td>17</td>
<td>Lindsay Romanic</td>
<td>13</td>
</tr>
<tr>
<td>Dr. Elizabeth Marin</td>
<td>10,16</td>
<td>Jonathan Ross</td>
<td>24</td>
</tr>
<tr>
<td>Chris Marsala</td>
<td>24</td>
<td>Dr. Sarah Ross</td>
<td>10</td>
</tr>
<tr>
<td>Dylan Marsh</td>
<td>14</td>
<td>Nicole Roth</td>
<td>24</td>
</tr>
<tr>
<td>Dr. Jessecae Marsh</td>
<td>8</td>
<td>Dr. Jeffrey Rudski</td>
<td>23</td>
</tr>
<tr>
<td>Rebecca McCulloch</td>
<td>20</td>
<td>Laura Ruggerio</td>
<td>20</td>
</tr>
<tr>
<td>Susan McEwan</td>
<td>15</td>
<td>Daniel Rybak</td>
<td>13</td>
</tr>
<tr>
<td>Ellie McManus</td>
<td>13</td>
<td>Lauren Salgado</td>
<td>8</td>
</tr>
<tr>
<td>Katelyn McPartland</td>
<td>13</td>
<td>Larry Sanchez</td>
<td>21</td>
</tr>
<tr>
<td>Leah Messler</td>
<td>25</td>
<td>Jennifer Santiago</td>
<td>14</td>
</tr>
<tr>
<td>Courtney Meyer</td>
<td>21</td>
<td>Dr. James Scepansky</td>
<td>8</td>
</tr>
<tr>
<td>Amanda Miller</td>
<td>15</td>
<td>Dr. Luis Schettino</td>
<td>7,19,20,21</td>
</tr>
<tr>
<td>Courtney Minto</td>
<td>15</td>
<td>Kimberly Schoenberg</td>
<td>15</td>
</tr>
<tr>
<td>Dr. Julia Miwa</td>
<td>19,21</td>
<td>Samir Shah</td>
<td>18</td>
</tr>
<tr>
<td>Lisa Mogami</td>
<td>7</td>
<td>Eddie Shin</td>
<td>16</td>
</tr>
<tr>
<td>Angelo Montenegro</td>
<td>15</td>
<td>Jacob Silber</td>
<td>7</td>
</tr>
<tr>
<td>Dr. Gordon Moskowitz</td>
<td>11,12</td>
<td>Danielle Sin</td>
<td>19</td>
</tr>
<tr>
<td>Rebecca Moyer</td>
<td>15</td>
<td>Mahendi Singh</td>
<td>12</td>
</tr>
<tr>
<td>Nigel Muhammad</td>
<td>22</td>
<td>Kelsey Snyder</td>
<td>13</td>
</tr>
<tr>
<td>Linda Muller</td>
<td>17,18</td>
<td>Lindsey Snyder</td>
<td>10</td>
</tr>
<tr>
<td>Nicole Murlo</td>
<td>23</td>
<td>Dr. Sarah Starling</td>
<td>13,14</td>
</tr>
<tr>
<td>Chelsea Mursch</td>
<td>10</td>
<td>Lauren Steinbeck</td>
<td>11</td>
</tr>
<tr>
<td>Melissa Neustein</td>
<td>24</td>
<td>Thomas Steiner</td>
<td>14</td>
</tr>
<tr>
<td>Dr. Ageliki Nicolopoulou</td>
<td>7</td>
<td>Michael Stephenson</td>
<td>20</td>
</tr>
<tr>
<td>Victoria Nicosia</td>
<td>25</td>
<td>Dr. Jennifer Stevenson</td>
<td>17,18,23</td>
</tr>
<tr>
<td>Dr. Richard Noll</td>
<td>9,11</td>
<td>Andre Sumiel</td>
<td>13</td>
</tr>
<tr>
<td>Catherine Nonnemacher</td>
<td>11</td>
<td>Dr. Jennifer Swann</td>
<td>17,19,20,21,22</td>
</tr>
<tr>
<td>Deyang Nyandak</td>
<td>8</td>
<td>Dr. Zachary Tempel</td>
<td>16</td>
</tr>
<tr>
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<td>Tyler Tocci</td>
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<td>Dr. David Okonkwo</td>
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<td>Holly Tomaszewski</td>
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<td>Amanda Trittenbach</td>
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<td>Dr. David Panczykowski</td>
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<td>Chad Unera</td>
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<td>Stephen Van Doran</td>
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<td>Heather Putnam</td>
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<td>Brian Welsko</td>
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<td>Guadalupe Quintana</td>
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<td>Jacqueline Werner</td>
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<td>Sam Ramos</td>
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<td>Samantha White</td>
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<td>Dr. Katherine Ramsland</td>
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<td>Christopher Regnier</td>
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<td>Dr. Patrick Williams</td>
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<td>Dr. Elaine Reynolds</td>
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<td>Dr. Connie Wolfe</td>
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<td>Anika Riaz</td>
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<td>Andrew Zeveney</td>
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<td>Gena Rodriguez</td>
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## Oral Presentations

<table>
<thead>
<tr>
<th>Time AM</th>
<th><strong>Heritage Room</strong> Cognitive/Developmental PS</th>
<th><strong>Trayer Room</strong> Cognitive/Social Psychology</th>
<th><strong>Wood Room</strong> Philosophy of Mind</th>
</tr>
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<tbody>
<tr>
<td>9:00</td>
<td>Filling in the gaps: The role of Inference-Making Skills in Overall Narrative Listening Comprehension</td>
<td>The Impact of Weight and Gender on Perceptions of Sales Associate Effectiveness</td>
<td>Personhood: What Makes Us Humans</td>
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<tr>
<td>9:15</td>
<td>Reading Increases Visual and Verbal Creative Thinking</td>
<td>The Impact of Multiple Causes on Categorization</td>
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<tr>
<td>9:30</td>
<td>Exploring Theory of Mind in Adults</td>
<td>Impact of Women’s Leadership Priming on Moderation of Math Stereotype Threat Effect</td>
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<tr>
<td>9:45</td>
<td>Mind Wandering’s Influence on Attitudes, Attributes, and Decision-Making</td>
<td>Essentialism and Scientific Knowledge</td>
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<thead>
<tr>
<th>Time AM</th>
<th><strong>Heritage Room</strong> Cellular/Behavioral Neuroscience</th>
<th><strong>Trayer Room</strong> Applied Psychology</th>
<th><strong>Wood Room</strong> Applied/Social Psychology</th>
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<tbody>
<tr>
<td>10:00</td>
<td>The Neuroprotective Potential of Combined Antioxidant Therapy in a 6 hydroxydopamine Rat Model of Parkinson’s Disease</td>
<td>Perceptions of Morality in Medicine</td>
<td>Effect of Music on Heart Rate in Athletes</td>
</tr>
<tr>
<td>10:15</td>
<td>TLR4 Mutation Enhances Seizure Susceptibility in C57BL Mouse Model</td>
<td>A Review: The Effects of Excess Dopamine on the Neurological Disorder of Schizophrenia</td>
<td>Regulatory Fit in Collegiate Athletic Performance and Motivation</td>
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<tr>
<td>10:45</td>
<td>Intersectional Genetic Strategies Define a Novel Population of Wide-Field Amacrine Cells in the Murine Retina</td>
<td>The Effects of Exercise on Fibromyalgia</td>
<td>The Effects of Music and Synchrony on Group Rapport and Unity</td>
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<tr>
<th>Time PM</th>
<th><strong>Heritage Room</strong> Cognitive Psychology</th>
<th><strong>Hard Room</strong> Social Psychology</th>
<th><strong>Wood Room</strong> Social/Applied Psychology</th>
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<tbody>
<tr>
<td>1:45</td>
<td>The Role of Top-Down Processing and Orthographic Knowledge in Word Recognition</td>
<td>Does Music Make You Attractive?</td>
<td>The Effect of Number of Siblings on the Social Interaction of Children</td>
</tr>
<tr>
<td>2:00</td>
<td>Chocolate on the Brain</td>
<td>Individual and Collective Body Type Preferences among Male and Female College Athletes</td>
<td>First Impressions and Physical Appearance</td>
</tr>
<tr>
<td>2:15</td>
<td>Cognitive Control of Athletes and Videogamers</td>
<td>Professors’ Perception of Students Based on Clothing</td>
<td>The Effect of Text messages on Self-Esteem</td>
</tr>
<tr>
<td>2:30</td>
<td>The Effect of background Music on Task Performance</td>
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Poster Presentations

**Clinical Neuroscience**

Poster 1. Cost-effectiveness of stand-alone lateral lumbar interbody fusion (LLIF) versus transforaminal lumbar interbody fusion (TLIF) for degenerative spondylosis with low back and leg pain over 2 years

**Cellular Neuroscience**

Poster 2. Expression pattern of the Hox gene Antp in the Drosophila postembryonic ventral nervous system

Poster 3. Cell transfection by adeno-associated viral vector in the rat brain

Poster 4. The effects of prenatal ethanol exposure on corticothalamic neurons using a mammalian model

Poster 5. Co-localization of nitric oxide synthase with PSD-95 and RT-97 in the pre- and postsynaptic membranes

**Cognitive Neuroscience**

Poster 6. Criteria and visual processing of images to determine a stranger’s sexual orientation using Tobii remote eye-tracker

Poster 7. The Autism Spectrum Quotient: A clear predictor of success on the Raven’s Advanced Progressive Matrices?

Poster 8. Effect of autistic traits on face processing strategy when determining sexual orientation

Poster 9. Are you smarter than a mouse?: Comparison of adults, children, and mice in virtual and physical Hebb-Williams maze tests

Poster 10. Using spectral analysis and event-related potentials to identify cognitive deficits within concussed student athletes

**Behavioral Neuroscience**

Poster 11. Characterizations of sexual dimorphic projections from the magnocellular medial preoptic nucleus

Poster 12. Investigation of visual learning in wild-type and presenilin mutant Drosophila melanogaster larvae

Poster 13. Precision grasping behaviors in young adults and children

Poster 14. Effects of various pharmacological agents on pain tolerance in lynx1KO mice through manipulation of nicotinic acetylcholine receptors

Poster 15. Reaction of the premotor ventral region to novel objects

Poster 16. Androgens and their role in regulating TrkB receptors in the MPNmag of Syrian hamsters

Poster 17. The age of emergence of aggressive behavior in a cichlid fish model is correlated with brood size

Poster 18. Investigations of maternal and paternal impacts on offspring aggression

Poster 19. Reactive change in digit speed upon object contact

Poster 20. lynx gene control over plasticity: NKCC1 and KCC2 expression ratios during development in mice

Poster 21. Polyphenol treatment for Parkinson’s disease in a LRRK2 Drosophila melanogaster model: targeting the intersection of environmental and genetic causes

Poster 22. Dopamine receptor activity provoked by neurotransmitter release in the medial preoptic area and the behavioral implications of D2 receptor location

Poster 23. Are androgen receptors found on axon terminals in the preoptic area?

**Education and Outreach**

Poster 24. The potential of our actions: 2014 brain awareness outreach at Moravian College and across the Lehigh Valley

**Clinical/Applied Psychology**

Poster 25. Immunotherapy for Addictions: Ethical Implications

Poster 26. Visual Processing in Individuals with Differential Autistic Qualities

Poster 27. Neurotic, Contentious, and Lonely! Differential vulnerability to cellphone relationship disruption

Poster 28. The Relationship Between Speech and Motor Development and the Number of Autistic Traits

**Cognitive/Biological Psychology**

Poster 29. Event Gaps, Location- Updating Effect, Doorways, and the Serial Position Effect

Poster 30. Effect of Music on Visual Perception

**Social Psychology**

Poster 31. The Effect of Weight Stigma on Impression Formation

Poster 32. How Music Moves You: Bopping and Bonding With the Beat

Poster 33. Effect of Musically-Induced Emotion on Conformity

Poster 34. Disability and Socioeconomic Status on Access to Resources

Poster 35. Perceptions of Residential Advisors: Influences of Aversive Racism

Poster 36. Microglial Response During Spinal Cord Regeneration in Axolotls