Proceedings of the 26th Annual Lehigh Valley Association of Independent Colleges (LVAIC) Undergraduate Psychology Conference

And the 2nd Annual Lehigh Valley Society for Neuroscience (LVSfN) Conference

APRIL 16, 2011

LAFAYETTE
Twenty-sixth Annual Lehigh Valley Association of Independent Colleges (LVAIC)

Undergraduate Psychology Conference

LVAIC Member Institutions
Cedar Crest College
DeSales University
Lafayette College
Lehigh University
Moravian College
Muhlenberg College

Participating Colleges and Universities
Ursinus College

Second Annual Lehigh Valley Society for Neuroscience Conference

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

Participating Colleges and Universities
Bryn Mawr College
Lycoming College
Susquehanna University
Ursinus College
## SCHEDULE OF EVENTS

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<td>A.M. Oral Presentations</td>
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<td>• Applied Psychology—Room 201 Oechsle</td>
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<td>11:30 a.m.–12:30 p.m.</td>
<td>LVAIC Keynote Address</td>
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<td>“Why is Remembering Unreliable? The Role of Social Interactions in Promoting Collective Memories”</td>
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<td>William Hirst, Ph.D.</td>
<td>Psychology Department, The New School for Social Research</td>
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<tr>
<td>12:30–1:30 p.m.</td>
<td>Lunch</td>
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<td>4–5 p.m.</td>
<td>Reception and Awards Presentation</td>
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<td>5–6 p.m.</td>
<td>LVSfN Keynote Address</td>
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<td>“Fear Factor: Neurobiology of Emotional Learning Across Development”</td>
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<td>Ms. Siobhan Pattwell, Ph.D. Candidate</td>
<td>Sackler Institute for Developmental Psychobiology, Weill Cornell Graduate School of Biomedical Sciences</td>
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### LVAIC Psychology Keynote Address

**Why is Remembering Unreliable?**

**The Role of Social Interactions in Promoting Collective Memories**

*William Hirst, Ph.D.*

**Psychology Department, The New School for Social Research**

**Abstract:**

Remembering often occurs as an act of communicating, during which memories can be implanted, reinforced, and suppressed. I will discuss how these consequences of conversational remembering shape the memories of speakers and listeners and how they promote collective remembering and collective forgetting. Their effects on collective memory are discussed in terms of collective identity and collective action.

### LVSfN Keynote Address

**Fear Factor: Neurobiology of Emotional Learning Across Development**

*Ms. Siobhan Pattwell, Ph.D. Candidate*

**Sackler Institute for Developmental Psychobiology, Weill Cornell Graduate School of Biomedical Sciences**

**Abstract:**

Highly conserved neural circuitry between rodents and humans has allowed for in-depth characterization of behavioral and molecular processes associated with emotional learning and memory. Despite increased prevalence of affective disorders in adolescent humans, few studies have characterized how associative-emotional learning changes during the transition through adolescence or identified mechanisms underlying such changes. Fear-conditioned mice were tested on various learning paradigms. Fear memory expression, along with changes in hippocampal molecular signaling and amygdala neurotransmission, was examined at various developmental stages. By examining fear conditioning in mice, as they transitioned into and out of adolescence, we found that a suppression of contextual fear occurs during adolescence. Although contextual fear memories were not expressed during early adolescence, these memories could be retrieved and expressed as the mice transitioned out of adolescence. This temporary suppression of contextual fear was associated with blunted synaptic activity in the basal amygdala and decreased molecular signaling in the hippocampus. These findings reveal a unique form of brain plasticity in fear learning during adolescence and may prove informative for understanding endogenous mechanisms to suppress unwanted fear memories.
SHORT PROGRAM

8:30–9 a.m.: Oechsle Hall lobby
Registration

9–10:30 a.m.: Oechsle Hall
A.M. Oral Presentations

Applied Psychology—Room 201 Oechsle
Effects of Physical Activity on Attention in Preschool Students
Emily R. Doll (supervisor: Sarah K. Johnson*)

A Developmental Look at Anti-expression Adaptation
Ilana Reife, Susan Barrett* and Katrina Hermetet

Correlation of Perceived Stress Levels and Undergraduate College GPA
Gina Ascola, Christopher Barron, Melissa Kreiner, Gustavo Rodriguez and Boyce M. Jubilant*

Academic Dishonesty and Risk Perception
Randall Katz, Brodie Main, Maggie Sullivan, Eric Hamilton and Jeff Rudski*

Appearance-Based Jury Bias in Criminal Court
Meghan Hunter, Cassie Deardoff, Lindsey Saucer, Eve Wienen and Boyce M. Jubilant*

Clinical/Personality Psychology—Room 209 Oechsle
Pursuit of the Ideal Body Image: Body Checking Behaviors and Muscle Dysmorphia for Fraternity and Non-Fraternity Men
Mason Carter and Susan Basow*

Effects of Early Parent-Child Attachment on Adult Physiological and Psychological Health
Courtney Rieck

The Effect of Somatic versus Cognitive Relaxation on Female Students’ Test Anxiety
Brittany Haltzman

The Differences between Blacks and Whites in the Treatment for Psychotic Symptoms
Jasmine S. Little, Sarah Rosenfield* and Dawne Mouzon

Interactive Effects of Personality and Construal Level on Dissent: Examining Why Conscientiousness and Openness to Experience Lead to Dissent
Dominic Packer* and Scott Herman

The Effects of Music on Aggressive Attitudes and Psychophysiology
Victoria Schupp

Cognitive Psychology—Room 223 Oechsle
Effects of Role Playing Games on Problem Solving
Caitlin Richards, Jackie Kurtz, Noelle Kantra, Tess Stone and Boyce M. Jubilant*

The Effects of Playing Video Games on Reaction Time
David A. Juliano, Lucky Valdes, Zachary J. Maltese, Brittany A. Trojan and Boyce M. Jubilant*

The Effects of Sleep Pattern and Duration on Verbal Memory
Nicole Buss, Amanda Reinhard, Jennifer Strouse and Boyce M. Jubilant*

The Effects of Self-Generated Drawing on Recall and Recognition
Katherine DiPierro, Rachel Gutman and Dana Shuldiner

The Effects of Focused vs. Unfocused Drawing on Memory and Recall
Katherine DiPierro

Action Packed: Applying Semantic Blocking to Reveal the Structure of Action Knowledge
Gwendolyn Johnson, Padraig O'Seaghdha* and Barbara Malt*

Social Psychology—Room 211 Oechsle
Faculty Perceptions of Diversity: Bounded or Embodied Knowledge
Connie Wolfe* and Emily Gup

The Influence of Race and Socioeconomic Status on Perceptions of Responsibility for Drug Addiction
Laura Johnson

The Effects of Offender and Victim Gender on Decisions of Punishment in a Domestic Violence Situation
Abigail Rodgers

Factors Influencing Perceptions of Abuse in Relationships
Nicole Meixell

The Relationship Between Facebook Use and Interpersonal Communication Skills in Female College Students
Rena Wallace

10:30-11:30 a.m.: Wilson Room, Pfenning Alumni Center
A.M. Poster Sessions

Neuroscience/Biological Psychology
1. An Electrophysiological Investigation of the Neurocorrelates of False Memory Errors
Joel Bish*, Matt Pall, Elisabeth Clarke, Kaitlyn Storey, and Kevon Hatamian

2. Addressing Tobacco Addiction Amongst Young Adults with Heroin and Other Opioid Addictions
Anna Whetstone, Monika Kołodziej, Gerardo Gonzalez and Douglas Ziedonis

3. Dietary Selenium Protects Dopamine Levels and May Improve Motor Behavior in the 6-Hydroxydopamine Rat Model of Parkinson’s Disease
Nicole Hadeed, Josh daSilva, Tyler McCambridge and Cecilia Fox*

4. Long-term Effects of Gestational Nutrient Restriction in Male Syrian Hamsters
Amanda Teple, Katelynn Ondek, Samantha Cartwright, Kevin Patel, Jill Schneider* and Erin Keen-Rhinehart*

5. Identification of AMPA Receptor in Hirudo medicinalis
Bailey Baumann, Anne George-Hallgren, Camille Petre and Peter D. Brodfuehrer*

6. Analyzing Mouse Purkinje Cell Morphology by Sholl Analysis Using Multiple Software Programs
Lusha Xu, Julia L. Was, and Mary E. Morrison*

7. The Impact of Antioxidants on Survival of Synaptic Neurotransmission Mutants Affected by Oxidative Stress in Caenorhabditis elegans
Taylor Bell, Erin Slauwnhite, Amy Hartl, Caitlyn McLarnon and Rebecca E. Kohn*

8. Sensitivity of Caenorhabditis elegans Mutants to Oxidative Stress
Caitlyn McLarnon, Caitlin McGee, Elizabeth Roth, David J. Konstanzer, Laura Gurelian and Rebecca E. Kohn*
9. Axon and Dendrite Development in Early-Stage, Cultured Purkinje Neurons
John Mastrobuono and Mary E. Morrison*

Ethan R. Sellers, Karahlyn Troutman and Mary E. Morrison*

11. Cerebrum Renatus: The Renaissance Brain
Rania Hanna and Sahar Tabshi

Cognitive Psychology
12. Effects of Task Difficulty and Verbal Distraction on Students’ Reading Comprehension: Gist Information was Better Captured than Specific Information
Jing Wang and Jennifer M. Talarico*

13. Bittersweet Memories: Recalling Mixed Emotional Experiences
Karalyn F. Enz and Jennifer M. Talarico*

14. Processing and Suppressing Emotion
Francesca Martinez, Chelsea Corley, Julie Brahen and Katherine Morrow

15. Emotion in Music: Does Music Induce Emotion or Simply Represent It?
Laura Edelman*, Patricia Helms*, Olivia Scotti, Morgan Waldinger, Alan Bass, Melissa Katz, Joseph Mulvihill and Joseph Sandor

16. Human Illness or War-Like Photos, Which is More Disturbing?
Nadine Abdouche and Sarah Johnson*

17. The Relation between the Quality of Mother-Child Discourse during Storybook Reading and Empathy
Siri Amster-Olszewski and Deborah Laible*

18. Oral Contraceptive Use on Spatial Abilities
Colette Faust, Breanne Biondi and Laura Edelman*

19. The Effect of Dream Journaling on Memory Consolidation
Rianne Stowell

Developmental Psychology
20. Effects of Attachment to Parents and Gender on Student Adaptation to College
Brooke Ziegelbaum and Susan Basow*

21. Perception of Marriage Timing in Emerging Adults
Molly Clarke, Carissa Jung, Sarah Mucci and Jessie Stern

22. Emerging Adults’ Perception of Idealized Age
Erin McIntyre, Katrina Ladd, Alexandra Anisko, Amanda Bisson and Jamila Bookwala*

Clinical/Personality Psychology
23. Zero-sum Orientation in Depressed and Non-depressed Undergraduates
Ashley Cartai, Peter Benton, Ahmed Elghawy, Madde Fan, Katherine LaFerriere, Nolan Maloney, Daniel Scavicchio, Joshua Tanenbaum, Kayleigh Thompson, Ryan Reuther and Catherine Chambliss*

24. Hypermasculinity and Gender Role Deviation
Anastaseos Giacoumopoulos and Sarah Johnson*

25. Be More Than You Can Be: Ethics of Cosmetic Psychopharmacology
David Kurtis, Samantha Merker, Genna Goldner and Mackenzie Raub

Cognitive Psychology—Room 223 Oechsle
11:00 a.m.–12:00 p.m: Oechsle Hall
Oral Contraceptive Use on Spatial Abilities
Colette Faust, Breanne Biondi and Laura Edelman*

11:30 am–12:30 p.m: Oechsle Hall Auditorium (Room 224)
LVAIC Keynote Address
“Why is Remembering Unreliable? The Role of Social Interactions in Promoting Collective Memories”
William Hirst

12:30-1:30 p.m: Bourger Plaza, Pfenning Alumni Center
Lunch

1:30-3 p.m: Oechsle Hall
PM Oral Presentations

Neuroscience/Biopsychology—Room 209 Oechsle
The Effects of Lavender Odor on Mood and Task Performance
Alyssa Peterson

Comparison of the Psychophysiological Effects of Zen Meditation and Prayer
Shayna E. Andrews

Race, Crime, and the Power of Unconscious Stereotypes
Ashley Juavinett and Elaine Reynolds*

Deletion of RD Susceptibility Gene Dyx1c1 Impairs Cognitive Performance
Ioana Marin, Monica Manglani, Cara Murphy and Lisa Gabel*

Deletion of Dyslexia Susceptibility Gene Dcde2, Impairs Visuo-spatial Working Memory
Monica Manglani, Ioana Marin, Cara Murphy and Lisa A. Gabel*

Developing Assays for Evaluating the Neuroprotective Role of Gingko biloba
Heather M. Harlin, Marissa L. Marietti, Kent K. Fitzgerald* and Audrey J. Ettinger*

Cognitive Psychology—Room 223 Oechsle
Source Memory for Word Generation
Tara Chiarella and Sarah Johnson*

Report a Study, Study a Report: Using Phrase and Word Pair Reversals to Study Speech Production
Anna Gonsiorowski*

Effects of Valenced Images on Perception and Psychophysiological Responses to Neutral Images
Laurean A. Botrus*

Pick Your Poison: Magical Contagion and Temporal Induction
Sharon Gute, Emily Grasso and Stacey Engoron (supervisor: Jeffrey Rudski*)

Bilingualism & Executive Control
Kate Arrington* and Emily Sipes

Social Psychology—Room 211 Oechsle
Effects of Character “U” Program on Academic Achievement and Behavioral Conduct of Freshmen College Students
Alyssa M. Irwin, Jessica J. Markovic, Fernanda E. Murillo, Brianne M. Taylor and Boyce M. Jubilan*

Perceptions of Bullying based on Gender and Attractiveness of the Assailant
Shannon Haberzettl and James Scepansky*

Perceptions of Bullying Based Upon Gender and Clique
Sarajane Sein

Implicit Brand Associations
Kathleen Harring*, Laura Edelman*, Lauren Henning, Daniellle Winston and Elana Greenfield
Social Needs of Residential and Commuter Students as Influenced by Personality Types
Jessica Thoms, Carol Tomaszewsk, Rebecca Lachapell, Caitlin Rebeck and Boyce M. Jubilan*

3-4 p.m. Wilson Room, Pfenning Alumni Center
P.M. Poster Sessions

Neuroscience/Biological Psychology
Cara Murphy and Lisa Gabel*

27. Electroencephalographic Investigation of Grapheme Processing in Grapheme-Color Synesthetes, Children, and Non-synesthetic Adults
Lauren E. Meeley, Kacie Dougherty, Stephen Brenner, Christopher Powers, Michael Duffield and Joel Bish*

28. Effects of Acute Prenatal Exposure to Ethanol on Axon Formation
Carlita B Favero*, Kacie Dougherty, Chris Howard, Andre Kiss, Jennilyn Weber and Amy Hartl

29. Fruit Fly as a Model for Alcoholism: Integration of Laboratory Pedagogy and Student-Directed Research
Taisha Jerez, Gabriel Eusebio, Bianca Vassere and Elaine R. Reynolds*

30. Effects of Dietary Modulation on Longevity and Epilepsy in Fruit Flies
Elizabeth Ingersoll, Stephen Conway and Elaine R. Reynolds*

31. Constant Darkness Diminishes the Pupillary Light Reflex in the Red-Eared Slider Turtle (Trachemys scripta elegans)
Kelbyann Niotis, Rosanna Fulchiero, Grayson O. Sipe, and James R. Dearworth, Jr.*

32. Stimulation of the CN IV in the Turtle Evokes Intorsion and Abduction of the Eye
Alyssa L. Ashworth, Joel M. Kaye and James R. Dearworth, Jr.*

33. Detection of Polarized Light by the Freshwater Turtle (Trachemys scripta elegans)
Elizabeth R. Wallach, Steven D. Melnic and James R. Dearworth, Jr.*

Emma Yasiniski

35. Effects of Background Noise
Julie Brahen, Brianna Holden, Kathy Harring* and Laura Edelman*

36. The Effects of Personal Relevance and Argument Quality on Attitude Change toward Genetic Testing
Elizabeth Devaney

37. Studying the Relationship between Sex and Aggression in a Cichlid Fish Model System
Catherine A. Mogle and Audrey J. Ettinger*

38. Timing and Migration of Rod Progenitor Differentiation into Rod Photoreceptors in Rocio octofasciata
Erin M. O’Donnell and Audrey J. Ettinger*

39. Studying Male Reproductive Investment in a Cichlid Fish Model
Kayla R. Sween and Audrey J. Ettinger*

40. Social Interactions
Julie Klein, Hannah-Rose Mitchell, Alexandra Ripkin, Deborah Ward and Mark Scuotto*

41. How Race and Gender Affect Student Evaluations of College Professors
Stephanie Codos and Susan Basow*

42. The Effect of Perfect Teeth on Attractiveness and Social Perceptions
Candace Eaton, Danielle Seife, Genna Wallerstein and Kim Yalango

43. The Effects of Peers on Anxiety and Self-Esteem during Test Taking
Haley Skymba

44. From Couch Potato to Physician: Fictional and Documentary Medical Television Programs and the Decision to Become a Health Professional
Lauren Howland and Alan Childs*

45. Imagine Me and You: Exploring the Existential Functions of Shared Experiences
Matthew Dohn*, Julie Brahen, Stacey Engoron, Dori Lewis and Melissa Martin

46. Competition Versus Communality: Influences on the Perception of Same-Sex Others
Laura Edelman*, Kathleen Harring* and Danielle Zito

47. Personal Space Invasion and Perception
Jessica Davies and Sarah Johnson*

48. Perceived Attractiveness of Attachment Styles Regarding Ideal Romantic Partners
Nina Skretkowicz and Jamila Bookwala*

49. Students’ Environmental Attitudes Change with Economic Climate
Kristy Brownell, Madeline Constantino, Hannah Kuranz, Kendra Swartz and Bruce Rideout*

50. The Leonardo DiCaprio Effect: Does Celebrity Endorsement Influence Support of Environmental Causes?
Stephanie Herr and Bruce Rideout*

51. Affective States Elicited through Ingroup and Outgroup Comparison within Varying Modes of Intergroup Dynamics
Dominic Packer* and Derek DeBellis

52. Impact of Advertising Media Education Program on Internalization of Media Body Ideals, Advertising Skepticism, and Media Literacy

53. The Best Learning Method: Text Modality vs. Visual Modality?
Chelsea Ott

4-5 p.m Wilson Room, Pfenning Alumni Center
Reception and Awards Presentation

5-6 pm: Oechsle Hall Auditorium (Room 224)
LVSF Keynote Address
“Fear Factor: Neurobiology of Emotional Learning across Development”
Siobhan Pattwell
Though the focus on the benefits of physical activity is not a new concept to the realm of research, significant gaps exist in the literature with regards to studying how physical activity affects young children. Specifically, links between the level of physical activity and consequent attending abilities of children have not been thoroughly investigated. The present study examined the effects of sedentary, moderate, and vigorous physical activity on preschool children’s (n=24; mean age = 4.7 years) attending abilities in a school setting. Results indicated that, regardless of gender or age, there was a significant positive relationship between increased intensity levels of physical activity and increased attending behaviors. In an adaptation task, prolonged exposure results in an opposing perceptual bias. After viewing a happy face for a few seconds, a neutral face looks sad. Benton and Skinner (2010) report similar after-effects with anti-expressions (artificial expressions with opposing values); viewing an anti-sad face makes a neutral face appear sad. Anti-expression aftereffects suggest adults encode facial expressions in a single emotion space. The present study tests whether a single multidimensional space captures children’s visual representations of facial expressions. I found significant anti-expression aftereffects in school age children, which suggests that children, like adults, encode expressions in single space structured by continuous dimensions (e.g., arousal and valence). Atypical experiences, such as trauma and physical abuse, can affect how this emotion space evolves. Anti-expression adaptation tasks are a powerful tool for exploring how traumatic experiences can have a lasting effect on emotion perception.

9:15-9:30 a.m.
A Developmental Look at Anti-expression Adaptation
Ilana Reife, Susan Barrett* and Katrina Hermete; Lehigh University

In an adaptation task, prolonged exposure results in an opposing perceptual bias. After viewing a happy face for a few seconds, a neutral face looks sad. Benton and Skinner (2010) report similar after-effects with anti-expressions (artificial expressions with opposing values); viewing an anti-sad face makes a neutral face appear sad. Anti-expression aftereffects suggest adults encode facial expressions in a single emotion space. The present study tests whether a single multidimensional space captures children’s visual representations of facial expressions. I found significant anti-expression aftereffects in school age children, which suggests that children, like adults, encode expressions in single space structured by continuous dimensions (e.g., arousal and valence). Atypical experiences, such as trauma and physical abuse, can affect how this emotion space evolves. Anti-expression adaptation tasks are a powerful tool for exploring how traumatic experiences can have a lasting effect on emotion perception.

9:30-9:45 a.m.
Correlation of Perceived Stress Levels and Undergraduate College GPA
Gina Ascola, Christopher Barron, Melissa Kreiner, Gustavo Rodriguez and Boyce M. Jubilan*; DeSales University

Several studies have shown that stress can affect the academic performance of students. The present study investigated the role of stress and coping responses of college students of varying Grade Point Average (GPA). Increase in heart rate was used to measure elevated stress levels in the participants. Forty-six undergraduate students at DeSales University volunteered to participate in the study including 11 men and 35 women between ages 18-22 years old. Using a Pulse Oximeter to measure beats per minute (BPM) participants were instructed to complete a 100 piece puzzle in a minute, and complete the 25 piece Perfection® in the minute allotted by the game. Students with higher GPAs have developed better mechanisms of coping with stressful situations. In contrast, students with lower GPAs have less developed mechanisms of coping with stress as indicated by an increased BPM when under a stressful situation.

9:45-10 a.m.
Academic Dishonesty and Risk Perception
Randall Katz, Brodie Main, Maggie Sullivan, Eric Hamilton and Jeff Rudski*; Muhlenberg College

The goal of this study is to measure the perceptions of seriousness and risks associated with committing academically dishonest behaviors. Additionally, this study seeks to examine whether making Muhlenberg’s Academic Behavior Code (ABC) more salient alters these perceptions. Results from this study can provide some insight as to whether certain behaviors inconsistent with the ABC may be amendable to modification by simply reminding participants of the code. Pilot work last semester suggested that for certain kinds of violations, reminding students of the ABC increased perceptions of risk and ratings of dishonesty. However, there were also some behaviors which were not affected by revisiting the ABC. On a more theoretical level, this study will further our understanding of how affect, risk, and benefit are interrelated.

10-10:15 a.m.
Appearance-Based Jury Bias in Criminal Court
Meghan Hunter, Cassie Deardoff, Lindsey Sauer, Eve Wienberg and Boyce M. Jubilan*; DeSales University

Appearance bias in court occurs consciously and unconsciously. These biases can be developed based on an individual’s physical characteristics, as well as the person’s clothing and accessories. Our research will explore the possibility of bias based on the physical appearance of female defendants when presented with a court case. Fifty undergraduate students at least 18 years of age participated in the study. The participants were divided into two test groups of 25 individuals. One group was exposed to women defendants dressed in thick make-up, high heels, and tight-fitted clothing. The other test group was exposed to the same two women dressed with little make-up, flat shoes, and professional business attire. We expect that the women dressed professionally will be viewed more positively and receive less guilty votes from participants. Upon completion, the data will be analyzed using a Chi-square test, the independent variable being the women’s dress style at an alpha = .05.

ABSTRACTS

Morning Paper Sessions
APPLIED PSYCHOLOGY
Oechsle Hall 201

9-9:15 a.m.
Effects of Physical Activity on Attention in Preschool Students
Emily R. Doll (supervisor: Sarah K. Johnson*); Moravian College

The present study examined the effects of sedentary, moderate, and vigorous physical activity on preschool children’s (n=24; mean age = 4.7 years) attending abilities in a school setting. Results indicated that, regardless of gender or age, there was a significant positive relationship between increased intensity levels of physical activity and increased attending behaviors. F(2,40) = 4.76, p < .05, η² = .19. These results provide strong support for the implementation of adequate amounts of physical activity in school programs for young children, and also suggest that children with attention disorders may benefit from increased physical activity.

9:15-9:30 a.m.
A Developmental Look at Anti-expression Adaptation
Ilana Reife, Susan Barrett* and Katrina Hermete; Lehigh University

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Meghan Hunter, Cassie Deardoff, Lindsey Sauer, Eve Wienberg and Boyce M. Jubilan*; DeSales University

Appearance bias in court occurs consciously and unconsciously. These biases can be developed based on an individual’s physical characteristics, as well as the person’s clothing and accessories. Our research will explore the possibility of bias based on the physical appearance of female defendants when presented with a court case. Fifty undergraduate students at least 18 years of age participated in the study. The participants were divided into two test groups of 25 individuals. One group was exposed to women defendants dressed in thick make-up, high heels, and tight-fitted clothing. The other test group was exposed to the same two women dressed with little make-up, flat shoes, and professional business attire. We expect that the women dressed professionally will be viewed more positively and receive less guilty votes from participants. Upon completion, the data will be analyzed using a Chi-square test, the independent variable being the women’s dress style at an alpha = .05.
The current research examines the effects of specific parent-child attachment style on one's physiological and psychological health. The Parental Bonding Instrument (PBI) was used to assess the attachment style of each parent: (i.e., secure, anxious-avoidant, anxious-ambivalent) in the case of each parent. This score was analyzed against scores on the Trait version of the State-Trait Anxiety Inventory (STAI) to examine the relationship between attachment and anxiety, and also analyzed against responses to a medical questionnaire, consisting of stress-related disorders, to determine the relationship between attachment and physical health. The researcher's hypothesis was that secure attachment between mother and child would result in the most healthful adult, while anxious-avoidant attachment to the mother would show the least healthful results. Analysis of the results showed no significant relationship between attachment to either parent and physiological or psychological health.

These findings indicate that parent-child attachment does not influence the development of anxiety or stress-related disorders. However, specific attachment style to mother was found to be contingent upon style of attachment to father, indicating that one relationship influences the other.
Dissent occurs when group members express non-conformist views with the goal of changing group norms. Prior research suggests that dissent requires both an ability to generate divergent perspectives and the motivation to publicly express them (Packer, 2010). This study examines the personality factors that may produce divergent/creative thinking and motivation, and whether the impact of personality is affected by a manipulated cognitive variable: construal level (concrete vs. abstract; Liberman & Trope, 2000). We hypothesize that Openness to Experience will predict performance on a creativity task and Conscientiousness will predict task motivation among people operating at both concrete and abstract levels of construal. However, we hypothesize that an abstract construal level manipulation will increase creativity and motivation among people low in Openness and Conscientiousness, respectively. Levels of creativity and motivation are then expected to mediate effects of personality traits on expressions of dissent. Preliminary data are consistent with these hypotheses.

The experiment examined the effects of different lyric types on aggressive attitudes and psychophysiology. Aggressive attitudes were measured by examining participants’ responses to a scenario-based questionnaire, as well as the scores on the State Hostility Scale and PANAS. Systolic and diastolic blood pressures were measured before and after the lyric condition. Lyric types were a rock song with violent lyrics, a rock song without violent lyrics, a rock song without any lyrics, and no music. It was hypothesized that participants who listened to the song with violent lyrics would provide the most aggressive responses and highest blood pressure and pulse readings. The results indicated that the participants who listened to the song with violent lyrics did not have higher blood pressure and pulse readings, and did not respond more aggressively than those who listened to the other songs. This suggests that rock songs with violent lyrics generally do not make people think more aggressively or raise their blood pressure and pulse.
The Effects of Sleep Pattern and Duration on Verbal Memory

Nicole Buss, Amanda Reinhard, Jennifer Strouse and Boyce M. Jubilan*; DeSales University

Studies have shown that sleep affects cognitive ability including verbal memory. Abnormalities in the sleep/wake cycle and duration of sleep can hinder the brain’s ability to process information during the waking and sleeping moments. This study was conducted to evaluate the effects of sleep pattern (i.e., “morning” or a “night” person) and duration of sleep on verbal memory recall. It is predicted that sleep pattern will not have a significant effect on verbal memory as long as the normal 8-hour average sleep was spent prior to testing. As a corollary, it is predicted that less than average amount of sleep will have an adverse effect on verbal memory. Seventy-eight participants were involved in this study including 20 men and 58 women. We are looking to find a correlation between the number of words remembered with the length of sleep received the night before. We are predicting to find that the longer an individual sleeps the higher amount of words they will recall. Preliminary results show that participants who received less than 8 hours of sleep remembered fewer words. There was no obvious difference between the patterns of being a “morning” person versus a “night” person, however.

Effects of Self-Generated Drawing on Recall and Recognition

Katherine DiPierro; Muhlenberg College

The purpose of this study is to compare the effects of self-generated drawing, representational graphics, and a control condition on learning and memory recall in college students. Self-generated drawing appears to produce more successful learning and recall, and can be used as a diagnostic tool to gauge comprehension of newly-learned material. The process of generating ones’ own drawings has never been directly compared to the effectiveness of included illustrations such as representational graphics. There is also scant evidence of the efficacy of imagery on improving recall of concrete words as compared to abstract words. If user-created drawings are as useful as or more effective than representational graphics, students may benefit from them as a mnemonic. We predict that participants in both the given drawing group and self-generated drawing group will perform better than the control group. Additionally, participants will recall significantly more concrete definitions than abstract definitions.

The Effects of Focused vs. Unfocused Drawing on Memory and Recall

Katherine DiPierro; Muhlenberg College

This study compares the effectiveness of drawing representational images and doodling (also known as unfocused drawing) on memory for new information, in college students. Though focused drawing (the creation of representational images) has been established as a memory aid and learning tool for children and adults, there is much less literature on doodling. Recent findings suggest doodling may improve memory relative to a control, but its efficacy has not been compared to focused, directed drawing. Additionally, there is no research examining the effects of focused and unfocused drawings between two different populations: art students and non-art students. Overall, participants in the focused (representational) drawing condition are hypothesized to recall more material than the control. Participating students with an art background, by advantage of artistic ability in rendering images, are predicted to perform better during the unfocused drawing condition.

Action Packed: Applying Semantic Blocking to Reveal the Structure of Action Knowledge

Gwendolyn Johnson, Padraig O’Seaghdha* and Barbara Malt; Lehigh University

Recent work has suggested that conceptual representations of actions are richly structured. Based on this growing literature, we hypothesized that conceptual knowledge about dynamic actions is organized into discrete subdomains within which closely affiliated actions are further differentiated. In addition, based on previous work (Johnson & O’Seaghdha, 2011; Malt et al., 2008) we hypothesized that the organization of knowledge for domains showing categorical distinctions in perception or naming (e.g., walking vs. running) is more strongly differentiated. We applied semantic blocking—a slowdown in picture naming when pictures are conceptually related—to test these hypotheses. Participants named videos of actions drawn from four separate domains manifesting either continuous (e.g., push, poke) or categorical (e.g., walk, run) patterns. In each domain, tightly restricted action sets containing highly related actions (e.g., walk and stride) were compared to loosely restricted action sets (e.g., walk and run). We predict that semantic blocking will occur for videos depicting actions, that it will be more pronounced for tightly packed sets of actions, and that this may be especially so for categorically divided sets. This work extends semantic blocking to study the fine-grained organization of action knowledge.

The Influence of Race and Socioeconomic Status on Perceptions of Responsibility for Drug Addiction

Laura Johnson; Cedar Crest College

The current research examined the impact of race and socioeconomic status on views regarding drug addiction. Participants (N = 90) read scenarios about a female heroin addict varying in terms of the addict’s race (Caucasian, African American, or Hispanic) and socioeconomic status (privileged or deprived). It was predicted that participants would hold an African American addict more responsible than a Caucasian or Hispanic addict. It was also predicted that participants reading about a Caucasian...
woman of higher socioeconomic status would place the most personal blame on her for her addiction. Finally, it was predicted that participants scoring high on the Just World Beliefs survey would attribute more personal blame on the addict than those scoring low. Results suggest race did not influence blame perceptions. However, a significant socioeconomic status main effect was found, and as predicted, participants who displayed high Just World Beliefs placed more personal blame on the individual.

9:30–9:45 a.m.
The Effects of Offender and Victim Gender on Decisions of Punishment in a Domestic Violence Situation
Abigail Rodgers; Cedar Crest College

Domestic violence against males and in same sex relationships is becoming much more common. The criminal justice system is still trying to adjust to this change in the incidence of these crimes, while facing public perceptions of these relationships. This study looks at how people would intervene in a domestic violence situation and then punish the offender based on the gender of the offender and the gender of the victim. Eighty participants were surveyed after reading a domestic violence vignette in order to look at how they would punish the offenders. It was hypothesized that male offenders with female victims would be perceived as more violent and therefore, participants would want to intervene earlier and punish the offender earlier or more severely. The results showed that neither the gender of the offender nor gender of the victim affected how the offender was punished.

9:45–10 a.m.
Factors Influencing Perceptions of Abuse in Relationships
Nicole Meixell; Cedar Crest College

The present study examined how perceptions of domestic abuse are influenced by knowledge of partner’s infidelity and alcohol consumption. Participants (N = 96) read a vignette about a domestic dispute between a married couple. Vignettes differed in terms of gender of the victim, whether or not the assailant was drinking, and whether or not the assailant had suspected their partner was unfaithful. Participants answered questions about their perceptions of what occurred in the vignette and then completed the Just World Beliefs scale (Dalbert, Montada, & Schmitt, 1987). Participants were predicted to hold the male partner more accountable for the abuse if he was drinking. Participants were also predicted to view the domestic dispute more justifiable if the partner was unfaithful. Alcohol was found significant to contributing to the altercation. When feeling sympathy for the victim, infidelity was significant.

10–10:15 a.m.
The Relationship between Facebook Use and Interpersonal Communication Skills in Female College Students
Rena Wallace; Cedar Crest College

This study investigated the relationship between Facebook usage and interpersonal communication skills. Responses from a survey of 99 female college students at Cedar Crest College were used to evaluate the relationships between the usage of Facebook (time spent, frequency of updates, frequency of comments, and Facebook use) and motivations for interpersonal communication (pleasure, affection, inclusion, escape, relaxation, control, health, and cybermotivation). In addition, the relationship between the usage of Facebook and emotional intelligence (self-awareness, managing emotions, motivation of self, recognizing emotions in others, and handling relationships) was looked at. It was predicted that the more a student used Facebook, the higher the scores would be for emotional intelligence and motivations for communication, therefore resulting in better interpersonal communication skills. Using a Pearson’s coefficient correlation, there were no significant findings although, results indicated that participants who were younger were more likely to use Facebook. Researchers can furthermore conclude that a relationship between interpersonal communication skills and Facebook use was not found using this survey.
1:45–2 p.m. **Comparison of the Psychophysiological Effects of Zen Meditation and Prayer**
Shayna E. Andrews; Cedar Crest College

The purpose of the study was to further understand the psychophysiological effects of religious/spiritual behavior by comparing prayer and Zen meditation. Participants were asked to pray, perform Zen meditation, or sit quietly, and then solve a number of algebra problems. Heart rate and blood pressure measurements were taken before and after the task. The researcher hypothesized that heart rate and blood pressure changes would be significantly different across conditions and correlated with the level of participants’ spirituality. However, no significant results were found.

2–2:15 p.m. **Race, Crime, and the Power of Unconscious Stereotypes**
Ashley Juavinett and Elaine Reynolds*; Lafayette College

In the United States, one out of every nine Black men is currently incarcerated. Statistics such as this help form the foundation of a belief that Black people are innately more violent, a notion that has been passed down from generation to generation. Though the directionality and underlying cause of the race and crime relationship is highly contested, it is clear that social stereotypes play a role in perception of a crime scene. The analysis combines eye tracking, galvanic skin response, and self-report measures with the hope that an interdisciplinary exploration of the psychological and cognitive components of these autonomic processes will foster a better understanding of how racial injustice can be avoided. The presentation will focus primarily on information about the background and approach, as well as a discussion of preliminary data.

2:15–2:30 p.m. **Deletion of RD Susceptibility Gene Dyx1c1 Impairs Cognitive Performance**
Ioa Marins, Monica Manglani, Cara Murphy and Lisa Gabel*; Lafayette College

Reading disability (RD) is a learning disorder with a strong heritable component. Numerous targeted association studies in dyslexic families have led to the identification of candidate dyslexia susceptibility genes (CDSG), Dyx1c1, DCDC2 and KIAA0319. However, the connection between these genes and behavioral impairments associated in individuals with RD is unclear. A number of theories have emerged concerning the etiology of RD, including phonological, auditory, visual, attention, visuo-spatial, cerebellar, and magnocellular, however it is unclear whether the range of theories is a result of varying epigenetic factors all resulting in RD. Recently genetic knockdown studies using in utero RNAi directed against Dyx1c1 have resulted in disrupted neuronal migration and cognitive impairments which parallel those identified in individuals with RD. In this study we examine the effect of altered Dyx1c1 expression, via germline deletion, on cognitive abilities in mice using a visual attention and visuo-spatial working memory task. We demonstrate that both heterozygous and homozygous mutations of DCdc2 result in persistent visuo-spatial working memory deficits but not visual attention. Furthermore, preliminary evidence suggests that the visuo-spatial working memory deficits may be related to increased anxiety associated with the Dcxc2 mutation. Future studies will be directed at determining if there are unique behavioral phenotypes associated with the different candidate dyslexia susceptibility genes which may help to clarify the connection between genetic variations and cognitive impairments of this complex developmental disorder.

2:30–2:45 p.m. **Deletion of Dyslexia Susceptibility Gene, Dcxc2, Impairs Visuo-spatial Working Memory**
Monica Manglani, Ioana Marins, Cara Murphy and Lisa A. Gabel*; Lafayette College

Reading disorder (RD, formerly dyslexia) affects 5-10% of school aged children (American Psychiatric Association, 2000), with a heritability of 44-77% (Astrom et al., 2011). Numerous targeted association studies in families with RD have identified several candidate dyslexia susceptibility genes, Dyx1c1, DCDC2 and KIAA0319, however the connection between these genes and the cognitive impairments identified in individuals with RD is unclear (Gabel et al., 2010, Paracchini et al., 2007). DCDC2, a member of the doublecortin family plays a role in neuronal migration and reduced expression of Dcxc2 in rats using in utero RNAi results in the formation of periventricular heterotopia (Burbridge et al., 2008, Meng et al., 2005). In this study we examined the effect of altered Dcxc2 expression, via germline deletion, on cognitive abilities in mice using a visual attention and visuo-spatial working memory task. We demonstrate that both heterozygous and homozygous mutations of Dcxc2 result in persistent visuo-spatial working memory deficits but not visual attention. Furthermore, preliminary evidence suggests that the visuo-spatial working memory deficits may be related to increased anxiety associated with the Dcxc2 mutation. Future studies will be directed at determining if there are unique behavioral phenotypes associated with the different candidate dyslexia susceptibility genes which may help to clarify the connection between genetic variations and cognitive impairments of this complex developmental disorder.

2:45–3 p.m. **Developing Assays for Evaluating the Neuroprotective Role of Gingko biloba**
Heather M. Harlin, Mariissa L. Marietti, Kent K. Fitzgerald* and Audrey J. Ettinger*; Cedar Crest College

During neural development, extra neurons are eliminated through an active process known as programmed cell death, or apoptosis. Neurons in vivo or in vitro can be induced to undergo apoptosis by treating them with glutamate, an amino acid neurotransmitter. Many diseases of the nervous system include neural death as a common pathology, which is particularly problematic as mature neurons generally do not divide. In the common disorder stroke, an initial phase of necrotic cell death is followed by a longer period of apoptosis, which can dramatically increase the area of brain damage. While there are some treatments available to reduce the initial damage of a stroke, there are currently no options for blocking apoptosis clinically using drugs. Herbal medicines, including *Gingko biloba*, have been an active area of inquiry as a potential treatment for apoptosis. Here, we have used glutamate-induced apoptosis in primary chicken neuronal cultures as a model system. Apoptosis timing was studied using cell staining and Western blot approaches to examine the expression of apoptotic factors. The timeline of apoptosis will then be used to determine the effectiveness of *Gingko biloba* in reducing the severity of damage following glutamate treatment through cell survival assays and microarray analysis.
In “chiasmus” constructions, we deliberately reverse word placements within a phrase to make a point. A famous example of this, said by John F. Kennedy, is “ask not what your country can do for you; ask what you can do for your country”. Inspired by these phenomena, we induced phrase and word pair switches to examine competition between words and phrases in production planning. Unlike previous studies, which have examined speech errors alone, we also measured reaction times to fully capture the underlying planning processes that precede the production itself. Participants repeated three-word phrases or word pairs both forwards and backwards based on a random directional cue. We expect that it will be difficult to reverse the phrases because the two production plans will compete. For all conditions, we will assess reversal costs by comparing production initiation times for repeats and switches. We expect switch costs to be least in arbitrary word pairs. Our aim is to elucidate processes of phrase and word planning in both erroneous and successful language production.

2:21 p.m.
**Effects of Valenced Images on Perception and Psychophysiological Responses to Neutral Images**
Laureen A. Botrus; Cedar Crest College

Results from previous studies have shown that positively and negatively valenced stimuli influence perceptual affect. In basic affective priming studies the participants had a greater reaction when the primes and stimuli were both congruent, i.e. positive-positive and negative-negative. Forty-five Cedar Crest College volunteers participated in a study that measures the influence of pairing neutral words with positively, negatively and neutrally valenced pictures. An increase in EDR and pulse rate was noted signifying a physiological change brought about by viewing the pictures. It can be inferred that viewing the pictures also had an effect on participants’ perceptions of the words. The overall rating scores of the words were significantly different across all picture groups. Participants in the negative group rated the words more negatively than those in the positive and neutral groups. This research suggests that the stimuli individuals are exposed to affects the way they view their surrounding environment.

2:15 – 2:30 p.m.
**Pick Your Poison: Magical Contagion and Temporal Induction**
Sharon Gute, Emily Grasso and Stacey Engoron (supervisor: Jeffrey Rudski†); Muhlenberg College

A study done by Rozin, Millman & Nemeroff (1986) investigated the effect of “magical” contagion in Western culture through the labeling of nonhazardous substances (water, sugar, chocolate) as potentially harmful (cyanide, dog feces). For example, one experiment consisted of presenting a participant with two identical cups containing an equal amount of sucrose and water with one labeled sugar and the other labeled cyanide. Despite being told that both samples contained sugar, it was found that participants preferred (were more likely to drink from) the sample labeled sugar to the cyanide labeled sample. The proposed experiment will expand upon Rozin et al’s study by seeing how temporal factors and various types of “filler activities” (rational, emotional and control) may affect the degree of magical contagion. We also plan to see how a universally taboo but not ‘deadly’ label might affect contagion as well. Data collection has already begun and will continue through early April.
The current research examined the influence of clique and gender of a victim on participants’ perceptions of bullying. Female college students read a journal entry which described a freshman being bullied by upperclassmen. The hypothetical victim was either male or female, and described as either a goth or a lacrosse player. Participants completed measures assessing their perceptions of the incident and their levels of sympathy for the author, and they completed the general Belief in a Just World scale (BJW). It was hypothesized that higher sympathy scores would be given to female victims, and that a female athletic student would receive the highest levels of sympathy, and. While the main effect for gender, was significant, contrary to what was predicted, participants rated the male victim significantly more sympathetically than the female victim. There was no significant interaction. Limitations and possibilities for future research, and anti-bullying programs, will be discussed.

The current study investigated implicit brand associations using a signal detection paradigm. In a group setting, participants viewed 10 positive, 10 negative, and 10 neutral brands interspersed with 30 letter strings. Stimuli were presented at 32 msec below participant’s level of awareness. After each trial, participants indicated whether they saw a brand name or a letter string. We measured detectability for the emotional tone of a brand as well as recall of the brand name. Results are interpreted in terms of implicit associations.

Satisfying the social needs of college students is significant to their success academically as well as their overall college career. This study identified the social needs outside of academics of residential and commuter undergraduate college students using a survey. One hundred undergraduate students, ranging from the ages of 18-22 years of both genders were asked to answer a total of 4 questions pertaining to their student activity involvement on campus and their status of either being a resident or commuter. The participants were then given the Eysenck Personality test answering 46 questions concerning whether or not they possessed introverted or extroverted personality types. Through these findings, we expect residential students with extroverted personalities will have much more involvement in student activities, and therefore will be able to meet and maintain more social needs in comparison to commuter students and introverted types.
potentials reveal differential electrophysiological for children and adults indicating the neurophysiological underpinnings of a common behavioral finding.

2. Addressing Tobacco Addiction Amongst Young Adults with Heroin and Other Opioid Addictions

Anna Whetstone, Monika Kołodziej, Gerardo Gonzalez and Douglas Ziedonis; Moravian College

Tobacco addiction is very common amongst individuals with opiate addiction and causes increased morbidity and mortality with estimates of 12 years shorter lives for smokers with opiate addiction than those without addiction. In the United States, 30% of the general population is dependent tobacco users, but in a population of opiate dependent individuals, tobacco use is three times the amount of the general population. While opiate use is highest among young adults, limited attention has been given to the study of tobacco use amongst young opiate users. In this study, it was hypothesized that young opiate users would have high rates of tobacco use and that tobacco use would correlate strongly with demographic characteristics and other substance use. It was found that participants with a higher education reported lower smoking rates and severity of opiate dependence scores. Also, it was shown a history of past cocaine use correlated with higher rates of smoking. Despite documented problems associated with co-occurring opiate and nicotine addiction, traditional treatment programs typically have not included tobacco addiction in treatment plans or programs. Tobacco cessation amongst illicit substance users needs to be further studied and addressed in order to improve the longevity of the abstinence.

3. Dietary Selenium Protects Dopamine Levels and May Improve Motor Behavior in the 6-Hydroxydopamine Rat Model of Parkinson’s Disease

Nicole Hadeed, Joshua daSilva, Tyler McCambridge and Cecilia Fox*; Moravian College

Parkinson’s disease is a neurodegenerative disorder characterized by the loss of dopamine neurons in the nigrostriatal pathway. The significant loss of dopamine may lead to the following symptoms: muscle rigidity, tremor, bradykinesia, and akinesia. Previous research has repeatedly demonstrated that free-radical damage may be the cause of the disease symptoms observed. Antioxidants have been studied as a possible therapeutic approach. The antioxidant, selenium, is located in the active center of the free-radical scavenging enzyme, glutathione peroxidase. Glutathione peroxidase is responsible for eliminating hydrogen peroxide before more hydroxyl radicals can be formed via the Fenton reaction. Following High Performance Liquid Chromatography analysis our lab demonstrated that higher percentages of dopamine and its metabolites were present in selenium-treated animals, indicating that selenium may maintain appropriate synthesis and metabolism of dopamine in neurons challenged with 6-hydroxodopamine neurotoxicity. The purpose of this Honors project was to determine the scope of selenium’s protective effect via a series of behavior tests to assess any improvement in fine motor skills. The results from tests such as the foot fault, cylinder and adhesive tests demonstrated a trend for improved motor function in selenium animals. Due to some procedural challenges, the footprint test did not yield any quantitative data.

4. Long-term Effects of Gestational Nutrient Restriction in Male Syrian Hamsters

Amanda Teeple, Katelynn Ondek, Samantha Cartwright, Kevin Patel, Jill Schneider* and Erin Keen-Rhinehart*; Susquehanna University

Prenatal nutrition, which is inextricably linked to maternal fuel supply, impacts future offspring physiology and behavior, especially for species inhabiting environments with an unpredictable food supply, such as Syrian hamsters. Pregnant Syrian hamsters compensate for extra energetic demands by increasing food hoarding rather than food intake. Offspring exposed to reduced nutritional supply in utero are hyperphagic and obesity-prone. Because of the nature of Syrian hamster ingestive behavior, we hypothesized that offspring from hamsters prevented from hoarding food during pregnancy would have increased food intake, hoarding, and body fat, as well as increased circulating insulin and hypothalamic neuropeptide Y (NPY). Pregnant hamsters were given ad libitum food access for 5 days, after which 50% were given food rations in the wire cage lid equal to pre-pregnant daily food intake, obviating hoarding and requiring extra energy expenditure during food intake. At 12 weeks plasma insulin was measured via ELISA and hypothalamic NPY was measured using immunohistochemistry. Male pups from restricted mothers had higher body weight, abdominal body fat, food intake, plasma insulin and NPY expression, but contrary to expectation, reduced food hoarding. In conclusion, offspring exposed to reduced fuel supply in utero exhibit lifelong perturbations in neuroendocrine physiology and ingestive behaviors.
Ionotropic glutamate receptors are a major contributor to fast, excitatory synaptic neurotransmission in the CNS of vertebrates and invertebrates. In the medicinal leech, glutamate and non-NMDA receptors, AMPA (α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid) and Kainate, have been physiologically and pharmacologically demonstrated to play a role in information processing at mechanosensory synapses, in regulating glia cell activity, and in the control of swimming, while NMDA receptors have been shown to contribute to synaptic plasticity between mechanosensory neurons and their central synaptic targets.

Here we show that 1) antibodies to AMPAR subunits GluR2/3 label several pairs of neurons in segmental ganglia and the head brain, and 2) the isolation and cloning of a 548nt fragment of the highly conserved downstream region of the GluR3 subunit from segmental ganglia using primers based on the leech transcriptome database and homology to GluR3 from Xenopus. The molecular identification and eventual biophysical characterization of the leech AMPARs will provide key knowledge that bridges the gap between effects of glutamate and non-NMDA receptors at the cellular level with the neuronal network properties associated with the initiation and maintenance of swimming behavior.

5. Identification of AMPA Receptor in Hirudo medicinalis
Bailey Baumann, Anne George-Hallgren, Camille Petre and Peter D. Brodfuehrer*; Bryn Mawr College

6. Analyzing Mouse Purkinje Cell Morphology by Sholl Analysis Using Multiple Software Programs
Lusha Xu, Julia L. Was and Mary E. Morrison*; Lycoming College

Purkinje cells are neurons that allow the cerebellum to perform functions such as control of locomotion, balance and eye movement. Purkinje cells communicate with other cells and their environment frequently through their dendrites and dendritic spines. It is important to study the morphology of dendrites because they are critical structures for communication, development and survival of the Purkinje cells.

Sholl analysis is one type of method that can quantify the dendrite morphology of neurons efficiently. Concentric circles are drawn on the cell starting from the center of the soma. The intersections of circles with dendrites are counted, and the relationship of intersections and the radii of the circles is graphed.

Previous experiments using publicly available ImageJ software for analyzing Purkinje cell morphology with a Sholl analysis plugin did not present accurate results from simple test images. Bonfire is a recently published semi-automated Sholl analysis program that has been introduced to this project. Dendritic branches are traced using the NeuronJ plugin within ImageJ. Data from NeuronJ is exported to the Bonfire plugin within MATLAB, which analyzes the tracings for Sholl analysis. This project seeks newer, more cost-efficient, more time-efficient methods for Sholl Analysis of neuronal structure.

7. The Impact of Antioxidants on Survival of Synaptic Neurotransmission Mutants Affected by Oxidative Stress in Caenorhabditis elegans
Taylor Bell, Erin Slaunwhite, Amy Hartl, Caitlyn McLarnon and Rebecca E. Kohn*; Ursinus College

Oxidative stress can contribute to the progression of neurodegenerative diseases, including Parkinson’s Disease, Huntington’s Disease, and Alzheimer’s Disease. Previous research shows that antioxidants, including L-ascorbic acid, Vitamin C, can neutralize reactive oxidative species (ROS). Neuronal activity can affect cellular production of antioxidants. We performed a toxicity assay on Caenorhabditis elegans with paraquat, which causes oxidative stress. Through the addition of L-ascorbic acid we expected an increase in survival rate of C. elegans exposed to paraquat. Two of the strains of C. elegans tested included mutations in snb-1 and unc-64, which have decreased neurotransmitter release, to assess whether decreased neuronal activity affects sensitivity to oxidative stress and antioxidants. L-ascorbic acid improved survival rates in wild type and the snb-1 mutant but not in the unc-64 mutant. Interestingly, the snb-1 mutant is more severely paralyzed than the unc-64 mutant as shown in swimming assays, indicating that severity of the defect in neurotransmitter release may not correlate with increased survival due to L-ascorbic acid. A dose response curve may be necessary for each mutant studied in this assay. Moreover, a different mechanism may be used in response to antioxidants in unc-64 mutants.

8. Sensitivity of Caenorhabditis elegans Mutants to Oxidative Stress
Caitlyn McLarnon, Caitlin McGee, Elizabeth Roth, David J. Konstanzer, Laura Gurenlian and Rebecca E. Kohn*; Ursinus College

Oxidative stress results when free radicals overwhelm cells’ ability to neutralize them, causing damage to the cells. When this occurs in neurons, damage can disrupt normal signaling pathways and eventually neurodegeneration can occur. An example of the contribution of oxidative stress to neurodegeneration is seen in enhanced progression of Alzheimer’s disease. To study the effects of oxidative stress in a model organism, we exposed mutant C. elegans strains with increased or decreased nervous system activity to different concentrations of a chemical that induces oxidative stress. We assayed the time it took for the worms to reach adulthood and whether or not the worms survived. Our data show delayed development or failure to survive to adulthood in strains that have decreased levels of neurotransmitter release. These findings support the idea that decreased nervous system activity makes cells more prone to damage due to oxidative stress.

9. Axon and Dendrite Development in Early-Stage, Cultured Purkinje Neurons
John Mastrobuono and Mary E. Morrison*; Lycoming College

Purkinje cells are located in the cerebellum, and are responsible for collecting and integrating information in order to coordinate locomotion, eye movement, and balance. The structure of dendrites and dendritic spines are especially important for the Purkinje cell’s function. Cerebellar cells can be cultured, and the Purkinje cells go through the same developmental stages as in vivo, with a slight time delay. Initially, the developing Purkinje...
cell in culture extends many short processes. Some of these initial processes are retracted, and then dendrites and an axon are extended. The goal of this study is to determine the identity of these early processes as dendrites, axons, or undifferentiated processes.

Previous studies have identified the MAP2 protein as a dendritic marker, and the phosphorylated epitope of the neurofilament heavy chain as an axonal marker, across multiple types of neurons. This study will use immunocytochemistry on early timepoint mouse cerebellar cultures to determine the fate of this initial Purkinje cell outgrowth. Staining results seem to indicate that anti-MAP2 and SMI-31 antibodies are selectively staining individual neurites. Further work is required including double staining the cerebellar cultures with anti-Calbindin D28K to identify Purkinje cells for analysis.


Ethann R. Sellers, Karahlyn Troutman and Mary E. Morrison*; Lycoming College

The Purkinje neuron provides the main output from the cerebellum to coordinate balance and movement. Like all neurons, Purkinje cells have axons and dendrites for sending and receiving information, and alterations in these structures affect motor function. During Purkinje cell development, early processes extend from the cell body. Later, after some processes retract into the cell body, apical dendrites erupt, and an axon begins to form. The identity of these early processes and the proteins they express are currently under investigation. Do these processes represent early axons, early dendrites, a hybrid, or a totally independent structure? This study aims to localize the expression of proteins and determine the identity of these early processes in the developing cerebellum by differential staining of whole brain cryostat sections.

Brains from postnatal day 1, 2, 3, and 5 C57Bl/6j mice were sectioned on a Leica CM1850 cryostat and placed on gel-coated slides. To identify axons and dendrites, these slides can be stained with antibodies against neurofilament-H (for axons) or microtubule-associated protein 2 (for dendrites). Staining can be visualized using our Nikon TE2000 microscope. Our results should clarify the identity of early processes, and the locations of specific proteins in the newborn mouse cerebellum.

11. Cerebrum Renatus: The Renaissance Brain

Rania Hanna and Sahar Tabishi; Moravian College

Rinascimento and nasce (Dictionary.com). These two Italian words combine and give semantic life to a blossoming period of human intellectuality. The Renaissance was a period during which the field of neuroscience experienced a rising phase in knowledge of the anatomy and physiology of the brain. Artists and scientists alike drew intellectual blood from each other to give life and meaning to the mysticism surrounding the human brain. This cerebral lifeblood is what helped shape our modern field of neuroscience into the frontier it has become. The age of Rebirth developed in an enveloped society that was ruled largely by the Church and Papal declarations. Pope Boniface VII in the tenth century AD had declared that cadaveric dissections were against Church Law (Finger, 1994). Visionary artists as Leonardo da Vinci worked in secrecy to cultivate a knowledge base of the human form. It is partly due to men like da Vinci, who worked under a cloak of concealment and disobedience, and the atmosphere of the changing times, that knowledge of human science really began to mature.

12. Effects of Task Difficulty and Verbal Distraction on Students’ Reading Comprehension: Gist Information was Better Captured than Specific Information

Jing Wang and Jennifer M. Talarico*; Lafayette College

A 2 (easy v. hard task) × 3 (no distraction v. negative v. neutral irrelevant speech) mixed-factorial experiment was conducted to examine the effects of task difficulty and verbal distraction on students’ reading comprehension. It was hypothesized that exposure to extraneous conversations would negatively affect students’ reading comprehension (i.e., increased reading time and decreased percent accuracy on the follow-up comprehension test) and the worst performance would be found among participants exposed to the negative irrelevant speech. Participants were expected to perform worse at hard questions (summarizing main idea for each passage; analyzing the function of a particular phrase) than easy ones (recalling details directly drawn from the text). At their own pace, participants studied two computer-delivered GRE passages quietly or in the presence of intermittent negative or neutral speech. Participants were expected to recall more negative emotions. However, some previous research has shown a mood-incongruence effect, particularly for negative emotions, which is hypothesized to be the result of emotion regulation strategies. Thus, the Affective Style Questionnaire, a general emotion regulation instrument, will be administered.
14. Processing and Suppressing Emotion
Francesca Martinez, Chelsea Corley, Julie Brahcn and Katherine Morrow; Muhlenberg College

The purpose of this experiment was to investigate how people suppress and process emotions. Research has shown that suppressing one's emotions may have detrimental effects on mental well-being. Conversely, it has also been suggested that processing emotions can help individuals deal with difficult life experiences. Our study attempted to explore how suppressing and processing an emotion affects a person's emotional state. Participants were primed with happy or sad emotions and instructed to either process or suppress those emotions. After the processing/suppression, participants' emotional states were measured. Results of our study may show that processing reduces negative emotions, while suppression leads to more negative emotion. Implications of our study may offer valuable information to people dealing with negative life experiences.

15. Emotion in Music: Does Music Induce Emotion or Simply Represent It?
Laura Edelman*, Patricia Helm*, Olivia Scotti, Morgan Waldinger, Alan Bass, Melissa Katz, Joseph Mulvihill and Joseph Sandor; Muhlenberg College

Previous research has shown that emotions elicited by a song often can be attributed to a prior memory rather than the song itself (Juslin & Slobada, 2001). Many studies have demonstrated this concept using thirty-second clips; however, the current study sought to determine the difference between emotional responses to longer and shorter clips of music. One group of participants listened to 8 thirty-second clips of classical pieces, while a second group listened to two minutes and thirty-seconds of the same 8 pieces. All subjects rated their emotional responses to the clip, along with measures of represented and induced emotion, and personal memories associated with the piece. Results will be discussed in terms of theories regarding music and emotion, along with implications for future research.

16. Human Illness or War-Like Photos, Which is More Disturbing?
Nadine Abdouche and Sarah Johnson*; Moravian College

Considerable evidence shows that what an individual perceives plays a role in aversive emotions. Although there is research about what an individual visualizes affects their mood, there is little evidence on what kinds of things they perceive that highly affects their mood or emotion. I will study how negative photos affect my participant’s mood. Subjects will look at two kinds of photographs, war-like and human illness photos. There will be some filler positive photos as well. I hypothesize that human illness photos will increase the subject’s distress level more than war-like photographs. The subjects will then be asked to fill out a Likert-scale survey that measured their emotion. This research is valuable to the world because everyone is exposed to sickness and war on a daily basis. This can help us understand how distressful exposing such things as war and human sickness can be.

17. The Relation between the Quality of Mother-Child Discourse during Storybook Reading and Empathy
Siri Amster-Olszewski and Deborah Laible*; Lehigh University

Psychological events, such as emotions, can only be inferred through behavior, not seen explicitly. Therefore, language is the tool through which these events are expressed and understood. Parents use language to teach their children about the emotions they are experiencing in order to help them understand the emotional reactions of others. Recently, there has been an emphasis on the use of language through conversation, as a way to socialize and coach children about emotions. Research has shown a link between children's emotional discussion with parents and emotional understanding; furthermore, a link between emotional understanding and displays of empathy has been found. The current study will look further in depth at the quality of the discussion between mothers and children during a storybook co-construction and its relations to children's empathy. 71 parent-child dyads read a wordless storybook, which contain emotionally laden themes, when children were 42 months of age.

Emotional discourse was coded for collaboration, intersubjectivity and the quality of emotional talk (causes, behavioral results, and links). At 42 months of age and 48 months children’s empathetic concern was measured. Preliminary results suggest that the quality of the dyadic co-construction during the storybook reading predicts children’s empathetic concern.

18. Oral Contraceptive Use on Spatial Abilities
Colette Faust, Breanne Biondi and Laura Edelman*; Muhlenberg College

The main goals of our project are to determine the effects of oral contraceptives on spatial abilities. Studies have shown that oral contraceptives decrease levels of testosterone. Other studies show that there are positive correlations between testosterone levels and spatial abilities. All of the effects of using oral contraceptives are unknown, and research is still currently underway, but it is our hypothesis that oral contraceptive use will result in a decrease in spatial abilities. Spatial abilities are important in how we perceive things visually. If using oral contraceptives adversely affects this, women should be informed of these potential changes in their perception and how they can affect them in everyday life.

19. The Effect of Dream Journaling on Memory Consolidation
Rianne Stowell; Moravian College

This experiment tests the hypothesis that dream journaling facilitates the consolidation of visual stimuli by improving the proficiency of dream recall. There will be two groups participating in the study, one that journals immediately upon waking and a control group that does not journal. Both groups will be presented with landscape paintings paired with titles and artists at the beginning of the study. The groups will then meet again for a testing session after three nights. It is expected that the journaling group will do significantly better on the recognition exam of the visual stimuli at the conclusion of the study. This study will establish the tool of dream journaling as a method to assist in the consolidation of visual stimuli during sleep.
20. Effects of Attachment to Parents and Gender on Student Adaptation to College
Brooke Ziegelbaum and Susan Basow*; Lafayette College

The goal of this study is to examine effects of student gender, type of parent-child attachment, and unhealthy parent-child relationships on students’ adjustment to college. First-year students at a small, liberal arts college in the northeast will be examined using an on-line survey. Adjustment to college will be measured along with the level of attachment and attachment style. The surveys will include the Student Adaptation to College Questionnaire, the Inventory of Parent and Peer Attachment, the Parent Adult-Child Relationship Questionnaire, and demographic questions. It is hypothesized that those who have secure attachment styles and those with healthy relationships with parents adjust better to college than those with insecure styles and unhealthy relationships. Participant gender will also be examined to see if it plays a role in the attachment style or the health of the relationship in regards to adjustment to college.

21. Perception of Marriage Timing in Emerging Adults
Molly Clarke, Carissa Jung, Sarah Mucci and Jessie Stern; Lafayette College

Emerging adulthood (ages 18—25) is a newly developed life stage between adolescence and young adulthood that is gaining recognition in the scientific community. As Arnett (2000) indicated, it is a period of identity exploration, instability, feeling in between, self-focus, and possibilities. This study examined how emerging adults perceive timing of marriage for themselves, their peers, and the average man/woman. In addition to perceptions of timing, 91 college students reported each of their parents’ ages at first marriage, current relationship status, number of prior serious relationships, class year, age, and gender through a questionnaire. Paired-samples t-tests showed significant differences between the ages at which female participants perceived the average woman to marry and when they perceived themselves to marry. Female participants perceived the average woman to marry at younger ages compared to when they perceived themselves to marry. No significant differences were found between the ages at which they reported their mothers as marrying and when they perceived the average woman to marry. These findings suggest that current women in emerging adulthood perceive the general female population as marrying at a younger age because of their knowledge of older generations. These women perceive themselves as marrying later, allowing for personal exploration in love, education, and work. Our findings provide evidence for the theory of emerging adulthood that it is further developing as a new life stage for current generations.

22. Emerging Adults’ Perception of Idealized Age
Erin McIntyre, Katrina Ladd, Alexandra Anisko, Amanda Bisson and Jamila Bookwalat*; Lafayette College

Jeffrey Arnett’s (2000) proposed new stage of development, emerging adulthood, refers to the developmental experiences of individuals 18-25 years of age. Arnett proposes that this stage is distinct from adolescence and adulthood. An increase in post-secondary education enrollment has led to a delay in age for first marriage and a prolonged time for career search. Thus, today’s emerging adults are likely to delay certain life transitions. We examined the role of participants’ age in their perceptions of ideal age for both male and female targets with regard to life transitions (independent living, financial independence, marriage, and parenthood). We hypothesized that juniors and seniors would report higher ideal ages for these life transitions than freshmen and sophomores and that the idealized age for life transitions would be higher for male targets than for female targets regardless of participant gender. A survey was used to collect data from 212 Lafayette College undergraduates. 2 (target gender; within-subjects factor) x 4 (class year [age]; between-subjects factor) mixed ANOVAs indicated significant main effects for class year and target gender. Idealized age for female targets was higher than that of male targets for both independent living and financial independence, while idealized age for male targets was higher than for female targets for marriage and becoming a parent. In terms of class year, freshmen reported significantly lower idealized ages than all other class years for both male and female targets living independently. These findings are discussed within the realm of the theory of emerging adulthood.

23. Zero-sum Orientation in Depressed and Non-depressed Undergraduates
Ashley Cattai, Peter Benton, Ahmed Elghawy, Madde Fan, Katherine LaFerriere, Nolan Maloney, Daniel Scavicchio, Joshua Tanenbaum, Kayleigh Thompson, Ryan Reuther and Catherine Chambliess*; Ursinus College

This study explored zero-sum orientation in depressed and non-depressed undergraduates. Zero-sum orientation was operationalized as low levels of Freudenfreude (joy in response to others’ joy) and high levels of Schadenfreude (joy in response to others’ suffering). Participants were 389 students (134 male, 255 female) aged 17 to 27. Schadenfreude and Freudenfreude were assessed through an author-devised sixteen item index addressing emotional reactions to scenarios involving the success or failure of the respondent or their friend. Depression was assessed using the Beck Depression Inventory-II. A median split on BDI scores created high and low depression groups. Independent samples t-tests indicated a significant group difference on the Schadenfreude and Freudenfreude Scales. Depressed individuals scored higher than non-depressed individuals for Schadenfreude and lower for Freudenfreude. Depressed individuals’ pleasure in others’ misfortunes may stem from others’ failure refuting their own self-blame. Others’ difficulties normalize suffering or validate a pessimistic world view. Depressed individuals may have less capacity for celebrating others’ successes, as they may view situations more competitively. Others’ successes may devalue depressed individuals’ own sense of accomplishment. They may invest less in others, compromising their ability to take pleasure in others’ success by reducing their sense of responsibility for the success.

24. Hypermasculinity and Gender Role Deviation
Anastaseos Giacoumopoulos and Sarah Johnson*; Moravian College

This study investigated the effects of masculinity within males and the negative attitude they possess toward women who deviate from their gender roles (i.e., hostility toward women, calloused sexual beliefs). Using a sample from the Moravian college population, participants were split into two groups to watch pre selected clips. Both sets of clips are viewable by only one of the two groups. The first group watched clips of normal
dating scenes, were women were quiet and shy. No aggression of any sort or sexual references were made by the women. The second group watched clips that portrayed women being assertive towards men as well as showing a signs of promiscuity and independence to the audience. After watching these clips the participants underwent the Hostility Towards Women (HTW) scale in order to measure their anger and/or resentment toward women. My expected results include the first group not scoring significantly high on the HTW scale. The second group will have the opposite effect, scoring very high after watching gender deviations.

25. Be More Than You Can Be: Ethics of Cosmetic Psychopharmacology
David Kurtis, Samantha Merker, Genna Goldner and Mackenzie Raub; Muhlenberg College

In 1993, Peter Kramer published a book called Listening to Prozac in which he introduced the concept of “cosmetic psychopharmacology”, or the use of psychoactive medication for enhancement instead of for treatment. A literature review under the terms “cosmetic psychopharmacology” or “neuroethics” …and … “enhancement” turns up articles in which authors present their opinions, but little else. Additionally, past articles each typically focus on only one aspect of pharmacological enhancement—one might focus on drugs to improve cognition, a second on one that increases a sense of satisfaction with life, and a third on using drugs to decrease subclinical anxiety. In the present study, participants provide their perspectives on enhancement for happiness, self-confidence, temperament, decreased anxiety, increased confidence, additional energy, and cognitive enhancement. We also examine how the framing of the agent’s use might alter people’s perceptions of its acceptability; scenarios will be framed as either competitive or non-competitive. Additionally, a natural/artificial frame will also be presented. Finally, we will measure how various personality constructs (e.g., contingencies of self worth, Machiavellianism, Ethics Position, etc.) might moderate/correlate with the effect of acceptability of pharmaceutical enhancement.

Afternoon Poster Session
Wilson Room, Pfenning Alumni Center

Posters No. 27-40: Neuroscience/Biological Psychology

Cara Murphy and Lisa Gabel*; Lafayette College

Fragile X Syndrome (FXS), the most common source of inherited mental impairment, is caused by the hypermethylation of FMR1 and the loss of its gene product FMRP. FXS is characterized by a range of physical, psychological, and cognitive impairments. Researchers endeavor to ascertain the function of FMRP and isolate the underlying physiological mechanisms. Previous research has shown that Fmr1 knockout (KO) mice are a valuable model for understanding how synaptic dysfunction in the absence of FMRP impairs cognitive function and cognitive development. However, the mild nature of the deficits observed in most cases suggest that either mice are not ideal models of human cognition or that the tasks are insensitive to the functional impairments caused by the absence of FMRP. It has been suggested that olfactory-guided tasks may be more appropriate tests of cognitive capacity in rodents. Therefore, the present study used an olfactory and visual discrimination learning paradigm to compare learning and memory abilities in normal and Fmr1 KO mice. A novel object recognition task and a novel odor recognition task were used to ascertain if there is a difference between visual and olfactory short term memory abilities in Fmr1 KO mice. Results for the novel object recognition task show a significant difference between Fmr1 KO and control mice during trial 1 (familiar object-familiar object) but not during trial 2 (familiar object-novel object). Results for the novel odor recognition task indicate that neither Fmr1 KO or control mice were able to discriminate between the odor cues presented. These data contradict previously reported findings; therefore future studies will be directed at determining the factor(s) which may contribute to this discrepancy.

27. Electroencephalographic Investigation of Grapheme Processing in Grapheme-Color Synesthetes, Children, and Non-synesthetic Adults
Lauren E. Meeley, Kacie A. Dougherty, Stephen Brenner, Christopher Powers, Michael Duffield and Joel Bish*; Ursinus College

Synesthesia is a neurological condition in which a stimulus evokes an abnormal cognitive or perceptual experience. Individuals who have grapheme-color synesthesia perceive numbers and letters to be inherently colored despite a lack of color information. Historically, one of the main hypotheses is that synesthetic processes are the norm for children and through neurodevelopment, neural pruning occurs to reduce the synesthetic experience in typically-developing individuals but remains for synesthetes into adulthood. This study investigated this hypothesis by comparing behavioral and electroencephalographic data from children aged three to ten known adult synesthetes and adult non-synesthetic controls. The electroencephalographic data in these older children indicate amplitude differences for the children compared to adult controls and adult synesthetes, but did not show a latency shift when compared to adult synesthetes. This study also used event-related potentials to investigate electroencephalographic differences between seven synesthetes and controls and data demonstrated a significant latency shift during three grapheme processing tasks. Based on these behavioral and electroencephalographic differences, this study suggests that synesthesia exists on a spectrum of specificity and automaticity.

28. Effects of Acute Prenatal Exposure to Ethanol on Axon Formation
Carlita B. Favero*, Kacie Dougherty, Chris Howard, Andre Kiss, Jennilyn Weber and Amy Hartl; Ursinus College

Fetal Alcohol Syndrome (FAS) is one of the leading known causes of mental retardation in the Western World. Characteristics of FAS include facial abnormalities, central nervous system disorders, and cognitive impairments. Fetal Alcohol Spectrum Disorders (FASD) is the umbrella term used to describe any abnormal physical or cognitive defects that result from prenatal ethanol exposure. FASDs exhibit a broad range of type and severity. While it is well-known that prenatal alcohol affects brain size and organization, less is known about the mechanisms by which alcohol affects axon development. Although most studies have focused on chronic prenatal ethanol exposure, the Favero lab is interested in the effects of acute prenatal ethanol exposure.
on axon formation between the thalamus and cortex, which is critical for normal sensing and perceiving in an environment. In this study, we administered ethanol in utero to Swiss Webster mice at embryonic day 12.5. Dye tracing was used to examine axons on embryonic day 18.5 for both ethanol-treated mice and controls.

29. Fruit Fly as a Model for Alcoholism: Integration of Laboratory Pedagogy and Student-Directed Research
Tasha Jerez, Gabriel Eusebio, Bianca Vassere and Elaine R. Reynolds*; Lafayette College

Drosophila melanogaster is a good model system for examining genetic predisposition to alcoholism. Flies sedate in a characteristic fashion and become tolerant to drug exposure, with one or multiple exposures or chronic exposure. The fly model system is ideal for introducing behavioral analysis, model systems, genomic analysis to undergraduates. Insertion mutations (available as part of the Fly Genome Project) were screened by our general biology laboratories for alterations in ethanol sedation behavior. Inserts that show altered behavior were then confirmed and examined in more detail as part of a student-directed research program involving 4 students over 3 years. Approximately 250 lines have been screened with 43 lines identified as having altered sedation behavior. Several inserts that stand out given their extreme sensitivity or resistance have been chosen for further study for tolerance behavior and learning and memory disruption. The screen thus far has yielded a range of defects and mutants. Mutants that are sensitive to alcohol appear at a higher rate in the insertion population than resistant mutants and altered sedation kinetics are more common than inserts that do not interact.

29. Fruit Fly as a Model for Alcoholism: Integration of Laboratory Pedagogy and Student-Directed Research

30. Effects of Dietary Modulation on Longevity and Epilepsy in Fruit Flies
Elizabeth Ingersoll, Stephen Conway and Elaine R. Reynolds*; Lafayette College

Diet is undoubtedly important in the proper functioning of the body. Calorie reduction has been shown to extend lifespan but few studies in flies have looked at the opposite effect. Lifespan in flies was examined by raising flies on high fat and high sugar diet as compared to a normal diet for the animals. Animals underwent development on the specific diet and adults were then monitored to determine when they died. A high fat diet decreased lifespan as compared to the normal diet but flies raised on a high sugar diet showed a normal lifespan. Diet has also been used therapeutically to reduce epilepsy. For example, the ketogenic diet (KD) a high fat, low-protein, low-carbohydrate, diet has been shown to be an effective treatment for epilepsy. We investigated the role of diet/nutritional modulation (based on the components of the KD) in ameliorating seizures in Drosophila melanogaster bang-sensitive (bs) mutants. While high fat diet might decrease lifespan, it suppresses seizures in these mutants, while high sugar diets generate more severe seizures. We are currently looking at the ratio of protein and sugar as another way to limit seizures without the potential negative consequences of the high fat diet

31. Constant Darkness Diminishes the Pupillary Light Reflex in the Red-Eared Slider Turtle (Trachemys scripta elegans)
Kellyann Niotis, Rosanna Fulchiero, Grayson O. Sipe and James R. Dearworth, Jr.*; Lafayette College

Non-image forming (NIF) processes such as the pupillary light reflex (PLR) and circadian rhythm entrainment have been studied extensively in various vertebrate species, but interactions occurring between them are poorly understood. The red-eared slider (Trachemys scripta elegans), a fresh water turtle, is a novel reptilian animal model for study of these interactions and provides a useful comparison to the neural processes occurring in mammals. PLRs to different wavelengths (480, 580, and 640 nm) in three turtles were measured after two weeks of entrainment to a photoperiod of 12:12 light/dark (LD) and then again after one week under constant darkness (DD). The responses to 480 nm were not affected, but the responses to 580 and 640 nm were reduced. Amplitudes of pupil constrictions were both lessened and their timings slowed. Why the responses at longer wavelengths are affected in this way is unclear, but one possibility is that the alteration of the circadian rhythm using constant darkness delays the shift to light adaptation by the retina, which is carried out by red and green sensitive cones. The results suggest that the photoreceptive mechanisms that are involved in entraining circadian rhythms in turtles can influence their PLRs.

32. Stimulation of the CN IV in the Turtle Evokes Intorsion and Abduction of the Eye
Alyssa L. Ashworth, Joel M. Kaye, and James R. Dearworth, Jr.*; Lafayette College

In frontal-eyed mammals, primary action of the superior oblique is intorsion with secondary action of abduction. For lateral-eyed mammals, however, secondary action is adduction. What are the actions in turtles, a lateral-eyed reptile? Based on orbit geometry, one would predict adduction, but based on vestibulo-ocular physiology secondary action is thought to be abduction (Jones & Ariel, 2006). To resolve this issue, eye movements during stimulation of the trochlear nerve (CN IV) were compared to those of the oculomotor nerve (CN III) and the abducens nerve (CN VI). Stimulations were done on nerves using isolated head preparations with constant current pulses (2 ms) delivered by glass suction electrodes at frequencies 10—400 Hz and with amplitudes 1—200 μA. The primary movement evoked by CN IV stimulation was inward rotation toward the nostrils; this was opposite of that during stimulation of CN III. A secondary movement away from the midline was also observed after stimulation of CN IV and was in the same direction as that evoked after stimulating CN VI; this too was opposite to the direction evoked after stimulating CN III. These results suggest that the actions of the superior oblique in turtle are intorsion and abduction.
33. Detection of Polarized Light by the Freshwater Turtle (Trachemys scripta elegans)
Elizabeth R. Wällach, Steven D. Melnic and James R. Dearworth, Jr.*; Lafayette College

Many animals have been shown to detect and use polarized light as a cue for navigation. Based upon ecological studies of migratory patterns and movements by hatchlings, this may include turtles. Possible structures involved in detection are oil droplets that are located in retinal photoreceptors and filter the light before it strikes photopigments. In this experiment, we tested a freshwater turtle species, the red-eared slider (Trachemys scripta elegans), for its ability to detect polarized light. Two turtles were conditioned to move toward a polarized light source using food as a reward. Once trained, turtles were given the choice to either move to the conditioned polarized light or to go to a second light with a polarization rotated 90° clockwise from that of the learned condition. The turtles preferred the conditioned polarized light source 72% of the time. Although more turtles still need to be tested to confirm, the results suggest that freshwater turtles can discriminate between different polarizations. Polarized light from the sun and reflections from surfaces may help turtles navigate long distances to go from one water source to another.

Emma Yasiniski; Lafayette College

Autism diagnoses have become more common in recent years than ever before. The characteristics of the disorder vary widely throughout the lifespan of an individual and between different individuals. The disorder is characterized mainly by behavioral characteristics including problems socializing, language deficits, and repetitive behaviors. However, there are some common biological characteristics of the disorder, such as increased brain size at a young age, abnormalities in the purkinje cells of the cerebellum, and often, the presence of the ENGRAILED 2 gene. Animal models have been created to represent the disorder by manipulating genetics and prenatal environment by exposing the mothers to chemicals such as valproic acid, some viruses and bacteria, or stress. The purpose of this literature review is to evaluate current animal models for Autism based on how closely they resemble the anatomic, neurobiological, and behavioral characteristics of Autism in children. For example, prenatal exposure to valproic acid in rats has produced rats with many behavioral characteristics of autism. However, it is known that valproic acid exposure in humans can only account for a small proportion of autism diagnoses. There is still a struggle to produce an animal model with an accurate interaction between genetics and environment for Autism.

35. Effects of Background Noise
Julie Brahen, Brianna Holden, Kathy Harring*, and Laura Edelman*; Muhlenberg College

Our study investigated how music influences social bonding in small groups. We randomly assigned groups of 3-6 participants into one of five conditions: control with just listening to the beat of the metronome, listening to music with the beat of the metronome, listening to music with the beat of the metronome and moving empty cups in synchrony, moving empty cups to the beat of the metronome, or making music by moving cups with beans in synchrony to the beat of the metronome. Following the trials the participants completed a questionnaire to evaluate perceptions of the group and their current mood. We predicted that the groups who listened to the music in addition to moving in synchrony with the empty cups and the groups making music with the “bean” cups would feel more connected to the other participants. This effect is due to these groups experiencing music as well as the kinesthetic factors associated with music. Listening to music without movement should also be powerful enough to affect perceptions of social bonds.

36. The Effects of Personal Relevance and Argument Quality on Attitude Change toward Genetic Testing
Elizabeth Devaney; Lafayette College

The current study investigated change in attitudes toward genetic testing through an experiment based on the predictions of the Elaboration Likelihood Model, a theory of persuasion concerning the processes responsible for attitude change (Petty & Cacioppo, 1986). The study employed a 3 (family history of genetic diseases) X 2 (argument quality) X 2 (time) design in which a sample of 73 participants were administered a pre-test assessing their acceptance of undergoing genetic testing for a fictitious disease. Participants then read strong or weak arguments advocating genetic testing for the disease and were administered a post-test to assess change of acceptance toward genetic testing as a function of family history and argument quality. A three-way mixed ANOVA revealed that participants with a family history of genetic diseases and those who were unsure about their family history were significantly more persuaded to engage in genetic testing from pre-test to post-test after reading weak arguments. However, participants with no family history did not show a significant increase in acceptance over time after reading weak arguments. These results provide information about factors that promote change in acceptance of genetic testing, which can prove valuable in upcoming years as genetic testing gains prominence in society.
Understanding and predicting the behavior of animals has been important throughout human history; as it allows for insight into human behavior. Cichlid fish, including *Rocio octofasciata*, are ideal model organisms for formal behavioral studies because they have a finite repertoire of behaviors that are easy to observe, and their environment is easily manipulated in the laboratory. Previous work in our laboratory has demonstrated social dominance, characterized by the guarding of a territory within the tank using aggressive behaviors, in individuals of both sexes, but it remains unclear which sex is most likely to become dominant and what factors control dominance in each sex. The current study aims to determine whether there are differences in male and female aggressive behavior, and, specifically, which sex is more likely to be territorial. Adult aggressive behaviors were observed in pairs of fish. Initial results suggest that in pairs of unequal initial size, the dominant fish may be male or female, while in size-matched pairs, males become dominant. This data will contribute to a better understanding of aggressive behavior and how it is used in varying social situations.

*Rocio octofasciata*, the Jack Dempsey cichlid fish, is a great model for studying the development of retinal cells, a question important for both clinical and basic science. While cell types, cell organization, and molecular mechanisms are largely conserved between humans and cichlids, fish eyes grow continually throughout the animal’s life. In order to maintain visual acuity during growth, new retinal cells are added from a pool of adult stem cells. Studying the timing and location of stem cell differentiation into rod photoreceptors in *R. octofasciata* will result in a better understanding of the mechanisms that regulate these stem cells. Here, injected bromodeoxyuridine (BrdU) was used as a marker for dividing stem cells in the retina. We have collected retinas at variable times after injection and have used immunohistochemistry to stain for stem cells (BrdU) and rod photoreceptors (rhodopsin). The survival time at which double labeled cells first appear indicates the time required for differentiation to occur. The position of dividing and recently differentiated cells within the retina can also be observed, allowing us to study the effects of the extracellular environment on these cells.

Aggressive behavior in animals can serve as a model for understanding the mechanisms underlying human behavior. We are using the Jack Dempsey Cichlid fish, *Rocio octofasciata*, to study the relationship between sex and aggression. In previous work, we have demonstrated that individual Rocio can be classified into territorial (T) and non-territorial (NT) behavioral morphs, where T animals show a much higher rate of aggression. Interestingly, males and females are each capable of aggressive behavior. Previous studies performed in other cichlid species have found that territorial males have spermiated testes, while non-territorial male testes lack sperm. At the macroscopic level, we observed that T males are larger and have a larger gonadosomatic index. Here, we have used Hematoxylin and Eosin staining of T and NT male testis to microscopically observe variation in structure and concentration of sperm. When ovaries were isolated, T females were found to have mature eggs, while NT females have few to no mature eggs present. Because sex in these fish is difficult to determine by external morphology, future studies include developing a molecular technique for determining the sex of living animals to guide further study of the relationship between sex and aggressive behaviors.

Past research on teacher evaluations has looked at main effects for professor gender, student gender, and professor race on evaluations, yet has not examined any interactions between such factors. The current study aims to examine such an
interaction, hypothesizing that Black males will receive the lowest evaluative scores on the overall measure, while White males will receive the highest. In addition, a significant interaction is hypothesized for student gender and professor gender, in which males were expected to rate male professors higher on scholarship, dynamism & organization, and females to rate female professors higher on instructor-group and instructor-individual interactions. A three-minute engineering lecture was presented to 160 White undergraduate students through a computer-animated professor simulation, in which professor race and gender varied across the 4 conditions. At the conclusion of the simulation, students rated the professor on a 26-question evaluation form and completed a true/false quiz to test their knowledge on the subject. Two by two by two ANOVAs were run to examine the 7 dependent variables

43. The Effects of Peers on Anxiety and Self-Esteem during Test Taking
Haley Skymba; Moravian College

Test anxiety can be very impairing to a student’s academic performance. This study examines the social environment during test taking, which may affect test anxiety. Specifically, test anxiety and self-esteem were examined by having confederates leave before a participant during a memory task to determine if this manipulation changed the participant’s anxiety and self-esteem levels. The three conditions included either zero, one, or two confederates leaving before the participant. These were measured through a questionnaire given to all participants using the deception that the experiment was truly about memory and color with sections of anxiety and self-esteem measurement questions throughout. It is expected that anxiety will rise systematically while self-esteem will lower systematically after more confederates leave the room. These findings would suggest that there is a social component to the testing atmosphere that is often overlooked by professors and teachers which may affect a student’s overall academic performance.

44. From Couch Potato to Physician: Fictional and Documentary Medical Television Programs and the Decision to Become a Health Professional
Lauren Howland and Alan Childs*; Lafayette College

Many different factors may influence a student’s choice to pursue a career in medicine, however, their television viewing habits are rarely considered to be a contributing cause. The influence of documentary and fictional medical programming on an individual’s decision to apply to medical school was investigated in this study. Participants in this study reported their current television viewing habits and their interest in health professions. They each watched a video segment from a medical documentary television series and a fictional medical drama and reported on the realistic nature of each program, its influence, and the quality of the role models portrayed. Students reported that watching medical television programs have influenced their decision to apply or not apply to medical school. Furthermore, the medical documentary television program was reported to be more realistic and influential than the fictional medical drama. Participants also reported that the role models in the documentary series would have a greater impact on an individual than the role models portrayed in the fictional series. Long term, longitudinal studies should be conducted to determine the degree of influence of medical television programs on the decision to become a health professional.

45. Imagine Me and You: Exploring the Existential Functions of Shared Experiences
Matthew Dohn*; Julie Braben, Stacey Engoron, Dori Lewis and Melissa Martin; Muhlenberg College

I-Sharing (Pinel, Long, Landau, Alexander, & Pyszczynski, 2006), the subjective experience of a shared social event, is a relatively new area of research within the emerging field of experimental existential psychology. Pinel and her colleagues have suggested that I-Sharing experiences likely serve important existential functions, in that these experiences help protect us from feelings of meaninglessness and isolation. Research within the area of Terror Management Theory (TMT; Greenberg, Pyszczynski & Solomon, 1986) has consistently demonstrated that mortality reminders motivate a range of defensive behaviors designed to maintain self-esteem and defensive faith in meaningful world views. It follows that I-Sharing experiences may serve a terror managing function in helping to shield the self from the negative consequences of reminders of death.

The present research seeks to examine the possible existential functions of I-Sharing within the context of Terror Management Theory. Study 1 examined the effect of vividly imagining a shared social experience on reducing self-reported existential anxiety. Study 2 followed up by investigating whether I-Sharing is associated with decreased worldview defensiveness following a reminder of personal mortality. The implications of these research findings as well as possible limitations are also discussed.

46. Competition Versus Communal: Influences on the Perception of Same-Sex Others
Laura Edelman*, Kathleen Harring* and Danielle Zito; Muhlenberg College

Male and female students rated the communality and desirability of 88 personality traits taken from a study by Pratto and John (1991) for same-sex peers. The current study was designed to investigate how the gender differences in competitiveness and communality affect the perception of same sex peers. Male and female students rated the communality and desirability of 88 personality traits taken from a study by Pratto and John (1991). Men perceived their peers to have more negative traits, while women perceived their peers to have more positive traits. The results are interpreted in terms of gender differences in competitiveness and communality.

Past research on gender stereotypes characterized women as possessing more
48. Perceived Attractiveness of Attachment Styles Regarding Ideal Romantic Partners

Nina Skrelickowicz and Jamila Bookwala*; Lafayette College

The purpose of this study was to test the relative applicability of three established interpersonal attraction hypotheses in predicting preference for different attachment styles in an individual's ideal romantic partner. The similarity hypothesis advocates that individuals prefer partners of similar attachment whereas the complementarity hypothesis advocates that individuals prefer partners with attachment styles that complement their own (Byrne, London & Reeves, 1968; Nowicki and Manheim, 1991). The attachment security hypothesis advocates that all individuals prefer secure partners (Chappell & Davis, 1998). 114 undergraduate college students were recruited through convenience sampling and completed a questionnaire measuring self-attachment style, desired partner-attachment, and personality. I hypothesized that the similarity or attachment security hypothesis would better predict desired partner attachment style as previous studies have indicated this trend in samples of unmatched participants. Correlation and regression analyses utilizing personality traits as statistical covariates indicated that higher levels of self-anxiety predicted higher levels of preferred partner-anxiety and that higher levels of self-avoidance predicted higher levels of preferred partner-avoidance. The similarity hypothesis was therefore supported since participants desired partners with avoidance and anxiety levels similar to their own. This study extends current understanding about the intersection of the literature on interpersonal attraction and adult attachment.

49. Students’ Environmental Attitudes Change with Economic Climate

Kristy Brownell, Madeline Constantino, Hannah Kuranz, Kendra Swartz and Bruce Rideout*; Ursinus College

A convenience sample of Introductory Psychology students at Ursinus College were surveyed for endorsement of an environmental world view using the New Ecological Paradigm Scale (NEP). The survey included 15 questions for the NEP scale, followed by 14 demographic, knowledge-based, and attitudinal items including gender, class year, knowledge of environmental issues, belief in or denial of global warming, etc. In conjunction with other data from systematic samples collected over four previous academic years, a significant decrease was found between '08-'09 and '09-'10 on endorsement of the NEP, followed by a rebound in endorsement in '10-'11. These attitude changes could be attributed to the recession. In addition, seniors more strongly supported the idea that environmental issues have to be placed on a lower priority during a recession. The BP oil spill during 2010 may have contributed to the rebound in pro-environmental attitudes, with seniors showing lower environmental concern than freshmen due to greater worries over employment.

50. The Leonardo DiCaprio Effect: Does Celebrity Endorsement Influence Support of Environmental Causes?

Stephanie Herr and Bruce Rideout*; Ursinus College

Climate change and public opinion on the matter is a tense issue around the world, particularly in the United States, where the American Clean Energy And Security Act of 2009, legislation to combat global warming, was defeated by the Senate in July of 2010. College students are reaching the age at which they have the ability to express opinions through the polls. The present study evaluated the environmental worldviews of freshman students at a small liberal arts college in southeastern Pennsylvania and whether or not celebrity endorsement of environmental issues had an effect on participants’ endorsement of an environmental perspective. It was discovered that individuals showing more positive influence of celebrity endorsement also took a more environmentally friendly worldview. It was also found that women were more likely to respond positively to celebrity endorsement than men, who were more reactant, sometimes indicating that endorsement would make them less likely to take an environmental perspective.

51. Affective States Elicited through Ingroup and Outgroup Comparison within Varying Modes of Intergroup Dynamics

Dominic Packer* and Derek DeBellis; Lehigh University

Past research has shown that people automatically converge on the emotions of ingroup members and diverge from the affect of outgroup members. Extant research, however, has not investigated how readily these processes occur (e.g., in minimal groups), and how they are affected by different intergroup dynamics. We exposed participants to faces of members of two novel, competing minimal groups. Participants were randomly assigned to conditions in which: they simply learned about the groups, they were a member of one of the groups, or they were a member and the groups were temporarily goal-aligned. We examined affective convergence/divergence with an affective priming task. Participants who simply learned about the two groups displayed emotional convergence to both. In contrast, participants who
belonged to one of the groups evidenced convergence to the ingroup and divergence from the outgroup. However, there was no divergence from the outgroup when the ingroup and outgroup were goal-aligned.

52. Impact of Advertising Media Education Program on Internalization of Media Body Ideals, Advertising Skepticism, and Media Literacy

This poster presents findings from a media education program evaluation. The program, centered on food and fashion marketing, was implemented in two local middle schools. The impetus was two adolescent issues: overconsumption of “junk” food and beverages and body image disturbance—both of which have been documented as stemming in part from exposure to advertisements (Wykes & Gunter, 2005). We hypothesized that, upon program completion, participants would demonstrate: increased advertising media literacy, increased advertising skepticism and decreased internalization of media body ideals. Twenty-three randomly selected 8th graders completed surveys consisting of media literacy items (including two fake ads/prompts), the Sociocultural Awareness Toward Appearance Questionnaire (SATAQ-3; Thompson, et al, 2003) and individual item indicators. Researchers administered the instrument just prior to day one instruction and again just after termination. Trained undergraduate researchers co-facilitated the set of 8-10 40—minute sessions. Findings from paired samples t-tests revealed that advertising literacy scores on the post-test were consistently but non-significantly higher than at pre-test. Scores on the SATAQ-3 were significantly lower at post-test, indicating less internalization of media ideals; this finding was further supported by narrative responses to the fake print ads. Advertising skepticism had mixed results. Implications for future research are discussed.

53. The Best Learning Method: Text Modality vs. Visual Modality?
Chelsea Ott; Moravian College

This study was designed to investigate the utilization of text or visual modality, which may be helpful to those who want to maximize their retention. Participants either watched a video clip or read a passage about alcohol and its effects on the human body, followed by answering the open-ended question. The open-ended question simply asked the thoughts of the participant. All participants had a sufficient amount of time to write down their thoughts. After the participants completed the open-ended question, all participants then took the unexpected multiple-choice test, in which retention was measured. I expect that those who watch the video clip will yield a higher recall average than those who read the passage. Some students are visual learners and some students learn best by directly reading information from a textbook and the like. On a larger scale, testing students to find out which learning method facilitates retention in order to adjust their curriculum content may improve their learning immensely. This knowledge will help contribute in reducing the current reading and writing deficits of the country.

*Faculty Members
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