STUDENT RESEARCH DAY 2020 TITLES AND ABSTRACTS – May 1

Oral Presentations:

Lauretta Birabwa ’20, Major: Biology

Effects of Delphinidin as a Neo-adjuvant for Radiotherapy of Glioblastoma

Abstract:

Anthocyanidins are water-soluble pigments found in plants. They have antioxidant properties that provide various health benefits, including suppression of inflammatory responses and infection. Certain anthocyanidins like delphinidin have anticarcinogenic properties and have been used in clinical studies to boost immune responses against cancers. These studies demonstrated that delphinidin prevented the growth of breast cancer and lung cancer cells by reducing cell proliferation and stimulating apoptosis. While treatment for these cancers has expanded and good prognosis has been observed, limited treatment is available for cancers that are more aggressive and difficult to treat, such as glioblastoma. Glioblastoma affects the frontal and temporal lobes of the brain; therefore, delivering treatment is challenging. There are treatment options available like radiotherapy and chemotherapy; however, normal brain tissue is often adversely affected in the process. Normal cells are damaged upon radiation exposure even with the most target-specific methods. Additionally, there is a lack of non-toxic vehicles that can be delivered to the brain. Delphinidin not only has anticarcinogenic properties, but it is also non-toxic. This *in vitro* study was conducted to examine whether delphinidin could increase sensitivity of glioma cells to radiation. Two groups of cells were treated with delphinidin and ultraviolet (UV) radiation, respectively, and another was treated with both. An MTT assay was used to examine cell viability. To help explain the results for cell viability, DNA damage was examined using a comet assay. In cells treated with delphinidin in conjunction with UV radiation, compared to cells treated with radiation alone, higher cytotoxicity levels and greater DNA damage indicated increased sensitivity of glioma cells to radiation.

Ashlee Bourquin ’20, Major: Veterinary Medical Technology

Boots or Scrubs? Life as a Vet Tech Intern

Abstract:

Last summer, I had the opportunity to use my internship as part of the honors program within my major in veterinary medical technology. As part of this honors contract, my internship consisted of a main internship site along with valuable experiences from another practice where I was employed. The main internship site consisted of Lake Effect Veterinary Service, a mixed animal practice located in Watertown, N.Y. St. Francis Veterinary Center is a 24-hour emergency practice along with a general practice that is located in Swedesboro, N.J., which served as the secondary site of my internship. The types of animals I saw included everything from large animals to cats and dogs, exotic animals and even wildlife, depending on the facility. In this presentation, I will discuss my experiences during this internship. This will include some peculiar cases, as well as my role performing and assisting with procedures under the supervision of a veterinarian. These experiences will demonstrate how I put my

education from Wilson College to excellent use. Overall, it is these experiences, as well as my education, that have allowed me the opportunity to pursue my dream of being a veterinarian.

Alexis Chick ’20, Major: Veterinary Medical Technology

Lions, Wallabies and Geckos! Oh my!

Abstract:

I had the opportunity of completing my internship experience at the Pittsburgh Zoo and PPG Aquarium. The events and responsibilities that I had at the Pittsburgh Zoo were things that, for most people, are once-in-a-lifetime opportunities. It was a hands-on internship where I got to work with the zoo’s small, yet efficient, animal care team of two veterinarians and two veterinary technicians. In this presentation, I will talk about my everyday responsibilities, the skills I was able to practice and mostly, the three biggest cases I was involved in (as noted in the name of the presentation)! I will talk in depth about the cases of our male African Lion Razi, our female Wallaby Tomi and our female Leopard Gecko Bindi. I want to give fellow veterinary medical technology students an inside look at my experience and stress how important it was for me as a student to have it.

Aedan Cushman Reynolds ’20, Major: History and Political Science

Evolution of Tanks

Abstract:

“Evolution of Tanks” is a historical examination of the evolution of one of the most easily recognizable instruments of war, the tank. This examination is done with the hopes of examining and appreciating the impacts that tanks played in the evolution of warfare, and how that evolution forced tanks, themselves, to evolve. The presentation will focus on the early tanks of World War I, starting in 1916, and will discuss various famous tank designs and models from then to 2020, while also mentioning various advancements and revolutions in tanks.

Olivia Dorsey ’20, Major: Psychology

The Impact of Developmental Factors on Cognition

Abstract:

False memories can occur at any time in our everyday lives. These memories can be due to some form of internal or external biases, suggestions or inaccurate attributions. False memories are impossible for us to differentiate, as they are just as compelling and vivid as real, true memories. What value does studying false memory have for us? An important part of any court of law is eyewitness testimony. An important part of eyewitness testimony is our memory. A false memory has been defined as “… a distorted recollection of an event or, most severely, recollection of an event that never actually happened” (APA Dictionary of Psychology, n.d.). In the United States, “inaccurate memory” and “mistaken eyewitness identification” are the two most common causes of incorrect convictions (Kaplan, Damme, Levine, & Loftus, 2016). In an important study in the realm of false memory,

participants were easily fooled to believe that they had seen a stop sign when they were actually shown a yield sign. Why is it that our brains create false memories in the first place? What other factors contribute to false memories? Many research studies have hinted at a strong correlational relationship between age and false memories (Devitt & Schacter, 2016). It has been suggested that as we age, we become much more susceptible to discrepancies, gaps in our memory and false memories. This research examines the relationship between age and the formation of false memories.

Shallyn Fanjoy ’21, Major: Psychology

Time Spent on Social Media According to Site and Activity, and Confidence Levels for Wilson

Abstract:

Mental health is very important in today’s society. Confidence is one aspect of mental health that is necessary to navigate our lives in the world around us. One study suggests that our technology use, including social media, hurts people mentally (Twenge, Martin, & Campbell, 2018). The present study looks at the relationship between time spent on social media platforms and a person’s confidence levels. To see if the amount of time spent on social media platforms affected people’s confidence, they were asked to keep a daily log for five days of how much time they spent each day on four social media platforms: Facebook, Twitter, Instagram and Snapchat. After five days of logging their data, they were asked to fill out the Self-Esteem Rating Scale (Nugent & Thomas, 1993), which asks questions about how they feel about themselves in different scenarios, all aimed at ascertaining one’s self-esteem levels.

Shannon Gunter ’20, Major: Biology

Reprogramming of Adult-Derived Stem Cells into Oocytes for Reproduction in Echinoidea (Sea Urchins)

Abstract:

The world of biology and medicine is constantly changing, growing and finding new, innovating ways to cure and treat many disorders, defects and diseases. One outstanding discovery that has been taking the world of medicine and science to new levels, is the use of stem cells and their ability to convert and replace defective cells in order to help control and cure diseases. Induced pluripotent stem cell (IPSCs) are adult cells that have been genetically reprogrammed to an embryonic stem cell-like state by being forced to express genes and factors important for maintaining the defining properties of embryonic stem cells. This study was designed to determine whether adult-derived cells, coelomocytes, can be isolated from *Echinoidea* (sea urchins) and reprogrammed under various culture conditions as germline cells, specifically oocytes. Several transcription factors: Oct4, Sox2, cMyc, and Klf4, attached to an expression vector with GFP, were used under controlled culture conditions to facilitate the reprogramming. Coelomocytes were extracted from the body cavity of several short-spined sea urchins and cultured in six well plates for two days before introducing the expression vectors. A parallel study was conducted using human fibroblasts for comparison. The cells and expression vectors were then transferred to 60 mm culture plates coated with 0.1 % gelatin and co-cultured with mouse embryonic fibroblasts. The cultures were maintained over several weeks and observed for evidence of transformation into IPSCs. A photographic record was used to monitor the progression of

morphological changes in the transformation of the cells. The morphological changes observed indicated successful transformation to IPSCs in both fibroblasts and coelomocytes.

Samantha Heckendorn ’20, Dual Major: Graphic Design/Dance

What Does Dance Mean to You?

Abstract:

Dance has been a major part of my life and identity since childhood. I have practiced ballet, jazz, hip-hop, pointe, contemporary, tap, modern dance techniques and many other styles for almost as long as I have been able to walk. Clearly, dance is a defining element in my life. However, defining what dance means to me through the language of spoken or written word has been a challenge. This challenge led to my capstone project. For this body of work, my intention has been to utilize my training and skill set as a graphic designer, photographer and dancer to make a series of photographs exploring dance, and why dance is important to those who do it.

After asking dancers of all ages what dance means to them, I photographed the dancers in any pose/position they desired. Using lights acquired from Wilson College’s Nerd Crew, I lit the Appenzellar-Buchanan Dance Studio with dramatic, colorful lighting and began photographing dancers. Next, I manipulated the photographs in Photoshop and Lightroom to turn relatively simple portrait images into complex graphic designs incorporating text quotes from each dancer’s response to a question concerning what dance means to them. What developed were explorations in *graph-ic* and *image,* resulting in a series of graphic designs addressing portraiture, dance, typography, expression and vision.

Samantha Heckendorn (Dance Performance) ’20, Dual Major: Graphic Design/Dance

Four Solos to One: Exploration of Digital Performance

Abstract:

This project has greatly shifted from the original idea, which was to explore what it was like working with contrasting choreographers for four different solos. The solos would have been strung together to form one piece. This was to be a reflection and exploration of different teaching techniques and how to adapt to learn their choreography. However, with the current times that we are in, this idea never got to be explored fully. Instead, I am taking advantage of the wide range of technology available to me and using it to perform and edit one solo instead of four. This piece is now an exploration in digital editing and production of a piece to be shown on technological platforms rather than to be performed for live performances. Although this project has changed, it has prepared me to adapt quickly and learn how to continue dancing even when we cannot dance together.

Choreography: Megan Mizanty

Music: *If the World Was Ending* by JP Saxe ft. Julia Michaels

Abbey Heinbaugh ’20, Major: Biochemistry

Cytotoxic Evaluation of Select Heavy Metals in Eyeshadows on Human Telomerase – Immortalized Corneal Epithelial Cells

Abstract:

Due to limited regulations and guidelines for the cosmetic industry, there is growing consumer concern regarding the safety of product ingredients and impurities. Color additives, specifically, are utilized frequently to enhance color and overall appearance. These additives routinely incorporate heavy metal compounds in their formula. While color additives are approved for safe consumer use by the FDA, there may be a potential for heavy metal bioaccumulation with routine cosmetic usage. Therefore, the first aim of this dual-phase research project was to quantify the amount of lead, nickel, iron and manganese in several commercially available eyeshadow brands using flame atomic absorption spectroscopy. Data suggested an absence or undetectable amount of lead and nickel in all five eyeshadow brands. However, levels of iron and manganese were quantified in all brands. To simulate how these heavy metals may affect consumers, the cytotoxicity of iron and manganese was evaluated *in vitro* utilizing human telomerase – immortalized corneal epithelial cells. Furthermore, additional cytotoxicity studies were performed to determine the toxicity of the eyeshadow brands, as a whole, and talc, the main ingredient in pressed eyeshadows. In general, increasing dosages of the above test compounds decreased cell viability as assessed via MTT assays. In a 24- and 48-hour comparison study to evaluate prolonged exposure, one third of the comparisons demonstrated statistically significant results. Of these significant results, 75 percent indicated a significant decrease in cell viability from 24 to 48 hours post-exposure. Therefore, the results of this research indicates a need for further in vitro and in vivo studies that evaluate the potential physiological effect of repeated corneal exposure from eyeshadow application.

Mikayla Kutz ’20, Dual Major: Veterinary Medical Technology/Biology

Effects of Environmental Enrichment on Aggression in Domesticated Swine

Abstract:

Aggression is a common behavior exhibited by animals in zoos, research settings and agriculture. This behavior can become problematic and result in injuries to other animals or handlers. Enrichment, typically a novel item or food reward, may reduce aggression by promoting the natural behavior of a species and may result in a safer and calmer environment. Enrichment can potentially benefit a number of industries. In agriculture, livestock are often raised in confined spaces conducive to the development of aggression. This study examined the impact and effectiveness of environmental enrichment on aggressive behaviors exhibited by the domestic pig, *sus scrofa domesticus*. Pigs were divided into three groups: a control group with no enrichment, an experimental group given an empty puzzle ball, and an experimental group given a puzzle ball containing popcorn. A puzzle ball is a hollow ball that has an opening to allow for treats to be placed inside. Pigs were allowed to interact with the puzzle ball for 12 hours each day for seven days. The behavior of the pigs in each treatment group was recorded. The frequency and duration of aggressive behaviors, such as biting and fighting, were noted and compared to that of other observed non-aggressive behaviors. The interaction with the enrichment item was intermittent and did not affect aggressive behaviors exhibited. Multiple variables likely impact the occurrence and severity of aggression in captive settings. Understanding how

enrichment may mediate aggressive behaviors has the potential to increase the safety of animals and handlers in the agriculture industry.

Rianon McKee (Honors) ’20, Dual Major: Veterinary Medical Technology/Biology

The Evaluation of Cold Laser Therapy as an Alternative Treatment for Dairy Cows Suffering from Mastitis and/or Elevated Somatic Cell Counts

Abstract:

Mastitis in Holstein dairy cows is recognized as the most common pathology that creates a monetary deficit due to milk losses and antibiotic usage. Mastitic cows produce less milk per day, shed an increased number of somatic cells in their milk, and are at a higher risk for systemic infection. Traditionally, mastitis is treated with a broad spectrum antibiotic intramammary infusion. However, treating all cows with antibiotics is uneconomical. Cold laser therapy (CLT) has been utilized in small animal and human medicine to decrease swelling, increase circulation, help combat disease, decrease pain, and increase cell proliferation and tissue regeneration. If deemed successful, CLT could serve as an alternative treatment for cows with mastitis and/or elevated somatic cell counts (SCCs). The utilization of CLT could decrease milk withholdings and antibiotic usage and theoretically, increase profits. To assess the effectiveness of treating mastitis with CLT, locally sourced Holstein dairy cows that scored a 2 or 3 on the California Mastitis Test (CMT) were assigned to one of four groups. Group one received Spectromast LC ℞ (SPM-LC) antibiotic, group two received CLT, group three received a combination of CLT and SPM-LC, and group four did not receive any treatments. Milk samples from each affected quarter were collected on days 0 (pre-treatment), 4, 7, and 14 post-treatment. SCCs were conducted to quantify disease regression/progression. Day 0 milk samples were cultured to determine pathogenic causation. Clinical signs including swelling, redness, and heat were recorded. Results suggest that there are statistical differences between the combination group and the group that received only CLT between day 0 and 7. The combination of CLT and SPM-LC treatments are most effective at decreasing SCCs and also clinical signs when compared to the other treatments. The results of this study will contribute to the current information regarding the use of alternative therapies for the treatment of mastitis.

Joy Merchant (Disert Scholar) ’20, Dual Major: English/History and Political Science

Encephalon

Abstract:

Encephalon—the brain—is a collection of short, creative nonfiction essays that focuses on a variety of brain-related issues through anecdotal cases of neuroscience, surgery, psychology, and mental health. In the collection, I hope to explore the fragility of human minds. As an author, I feel that bringing personal, truthful stories dramatically to life, while also providing factual information, helps to expose what it means to be cursed or blessed with a human brain. It is my great hope that Encephalon could help my audience to explore and understand typically taboo public topics, such as electroshock, phobias, parasites, anxiety disorders, and hallucinations. I also hope to encourage my audience to examine how their minds are frighteningly fragile.

Jill Mullen ’20, Major: History and Political Science

Examining the Effectiveness of Justice Reinvestment in Pennsylvania

Abstract:

In recent decades, many countries have experienced the considerable financial burden of mass incarceration. This issue has been especially salient in the United States. Between 2007 and 2018, 35 states attempted to cut corrections spending through justice reinvestment (Pew Charitable Trusts, 2018). Justice reinvestment is a data-driven approach to reduce corrections spending and reinvest funding into strategies to reduce recidivism and increase public safety (Rivers 2010, 2). In 2012, the Pennsylvania General Assembly enacted legislation to implement a Justice Reinvestment Initiative (JRI 1). As part of JRI 1, Act 122 of 2012 and Act 196 of 2012 were implemented to reinvest savings into victim services, local law enforcement, county probation and parole, and other community-based programs and services (Pennsylvania Commission on Crime and Delinquency, n.d.). In 2019, the state of Pennsylvania expanded on justice reinvestment when Governor Tom Wolf signed into law two more bills (JRI 2) that seek to further reduce the cost of incarceration, increase support for county probation departments, and reform sentencing guidelines (PCCD, 2019). Since 2012, Pennsylvania has seen a significant decrease in recidivism rate and the rate of growth in prison population (Commonwealth Foundation, 2019). This study seeks to determine whether there exists a causative relationship between the Justice Reinvestment Initiative in Pennsylvania and reduced recidivism rate and prison population growth in order to analyze its effectiveness as policy.

Jennifer Murphy ’20, Major: History and Political Science

“It is not an upperclassman privilege to make noise in the library:” Wilson College Student Government Minutes from the mid-1920s

Abstract

During the Victorian age, it was not common for middle-class young women to attend college. However, this trend drastically changed after World War I. In the 1920s, young women began attending college in record numbers. With a college education came newfound freedoms and social norms. College-age men and women were no longer governed by the strict conventions which controlled the actions of their parents and grandparents.

Through the transcription and editing of the Wilson College Self-Student Government Association (S.S.G.A.) minutes from the early 1920s, I seek to showcase how the rules and regulations were created, amended, approved, and disapproved of in response to this trend of increased college attendance. Similarly, I seek to understand how the rules and regulations designed in part by the students aided them in balancing the demands of academic purists, social organization involvement, sports, and a desire to have fun. Likewise, I intend to highlight the generational divide present in the negotiation of certain proposed rules and regulations between the conservative faculty and freedom-wanting students. Lastly, I will determine through an interpretation of the minutes, other official college publications, and the history of "new women" and college women if the changes made to the rules and regulations were atypical of other collegiate institutions and society at large, or not.

Samuel Ritter ’20, Major: Biology

A Study of a Fermented Fresh Food Diet and its Influence in the Production of Bacteria in the Gut of Domesticated Canines

Abstract:

In 2019, 63.4 million U.S. households had at least one dog. The most common dog food, “kibble”, does not necessarily deliver nutritional needs for canines. Although manufacturers add enough necessary nutrients, the dehydration and extrusion processes chemically modify the nutrients rendering them nondigestible and/or adequately absorbable. In response, alternative fresh diets have been developed. Answers Pet Food produces a fresh fermented diet following a process of fermented solution as a natural probiotic, raw sourced meat, vegetables, and spices to provide nutrients while addressing rebalancing of the gut bacterial biome. Ingredients are ground, mixed, formed into patties, and flash-frozen. This study was conducted in collaboration with Answers Pet Food, Fleetwood, Pa., to investigate the reestablishment of native microbial gut biome and if the processing modifies this bacterial load. This project was conducted in two phases. Phase 1 analyzed the bacteria during three different manufacturing runs. A leading brand dry kibble was analyzed for comparison. Phase 2 assessed the fecal bacteria from two whippets, one fed the kibble and the other the Answers diet. Samples from each phase were subjected to bacterial analysis utilizing selective agar to determine and quantify bacterial flora. In Phase 1, the data indicates that Answers is successful in reestablishing the proper flora through the process of competitive exclusion. Preliminary data from Phase 2 correlates with this in the fecal sample of canines. This data provides insight for Answers Pet Food in their manufacturing process, as well as for pet owners with dietary decisions to make.

Samantha Simmons ’20, Major: Psychology

College Students and Calming Companions

Abstract:

The purpose of this research is to better understand the animal-human interaction and how it affects the human’s psychological and physiological health and well-being. College students who live on college campuses need to adapt to a new environment while dealing with large workloads. Having a familiar companion animal (such as emotional support animals or pets) with them may bring comfort and help reduce anxiety and stress. The present study will look at the effects of having an emotional support animal in college dormitories compared to students without an animal in residence. Does the level of anxiety differ in college students who have emotional support animals present in the dormitory compared with students without animals in residence? It is hypothesized that students with emotional support animals will have lower difference in anxiety levels from time 1 to time 2 than students with limited contact or no contact, and students with limited contact will have lower levels of anxiety difference than students with no contact.

Julia Tabor ’20, Major: Biology

Effects of Diets High in Saturated and Unsaturated Fatty Acids on Spatial Learning and Memory in Young Guinea Pigs, Cavia porcellus

Abstract:

Good nutrition is essential to maintaining the health and functions of the body. Nutrition is an integral component of the daily routine for mammals. The essential nutrients that provide energy for the body include carbohydrates, fats and proteins. Fats or lipids, specifically, provide the most concentrated source of energy but are also the structural building blocks required for the growth, development and proper physiological functions of all cells in the body, including neurons. Saturated and unsaturated fatty acids (UFAs) are the primary structural components of the plasma membranes of the cells in our body and various components of the brain, including myelin sheaths, and the membranes of synaptic terminals and post-synaptic membranes. Plasma membranes, neuronal sheaths and synaptic terminals are dynamic systems in the body that are constantly changing to allow for positive physiological growth and development, improved neuronal conduction and synaptic transmission necessary for cognitive development. Juvenile guinea pigs, *Cavia porcellus*, were used as a model system to examine the effects of diets supplemented with fatty acids on spatial learning and memory. This study used three treatment groups, a control group that was fed a regular guinea pig diet, a saturated fatty acid group, and an unsaturated fatty acid group which were maintained on a controlled diet supplemented with higher levels of saturated fatty acids or UFAs from natural sources. Bodyweight and total amount of food consumed were monitored throughout the study. During the study, the guinea pigs were subjected to multiple trials for the learning phase and a final cognitive test to assess spatial learning and memory using a radial y-maze. Throughout the learning phase most were successful in navigating the radial y-maze. When subjected to the final cognitive test, behavior differences were observed among the treatment groups.

Sarah Taylor-Foltz ’20, Master of Fine Arts

Darning Arachne’s Stockings

Abstract:

In poetry and prose, this creative thesis explores current and historic cultural mythology, particularly in the context of gender. This work is in deep conversation with literary history and literary theory. It includes retellings and original tales that delve into feminism, paganism, Christianity, and ecology through the landscape of the speaker’s body/mind. It attempts to recalibrate human relationships to divinity.

John Uilkema ’20, Major: English

Lightbreak

Abstract:

Lightbreak is a collection of short stories that focuses on drawing the reader into a world of pulp fantasy, violence, stilted friendships, awkward people, and arcane castles. It is my take on the usual sword and sorcery trope. Even so, I want to look at how my characters would exist in a grounded

fantasy where the romanticized elements of mythology fall apart. Fantasy, as a genre, inhabits a strange place caught between myth and modern sensibility, a place I wish to explore with my works. I hope to bring my audience into this conversation while they enjoy a story at the same time.

Catarina Versichelli ’20, Major: Biology

The Effect of Stress on Limb Regeneration in Juvenile Axolotls, Ambystoma mexicanum

Abstract:

Stress is felt as a response towards a type of change: social, environmental, physical or mental. It induces a chemical reaction to occur within the body that helps to trigger the flight or fight response. It can negatively impact health and impair the healing process. Regeneration is an extreme form of healing where limbs or organs can be regrown once lost. The axolotl*, Ambystoma mexicanum,* is a vertebrate species capable of regenerating limbs, tail, and some organs. This study investigated the effects of stress on limb regeneration in juvenile axolotls. Axolotls were split into four groups: a control group with no limb amputation kept under low-stress conditions, a group with limb amputation kept under low-stress conditions, a group with no limb amputation kept under high-stress conditions, and a group with limb amputation kept under high-stress conditions. Increased environmental temperature was used to create the high-stress conditions. To quantify the level of stress, cortisol levels were measured. Each axolotl from all four groups were swabbed dorsally to collect mucus secretions containing cortisol. This occured seven times, once each week for 50 days after half had their left forelimb amputated. The samples were stored in 70 percent ethanol at 5 °C. All samples were processed using a competitive ELISA kit. Quantified cortisol was collected from each sample and recorded using a plate reader at 405nm. Axolotls kept under high-stress conditions regenerated their limbs more quickly than axolotls kept under low-stress conditions. Cortisol levels varied between treatment groups. The impact of stress on regeneration is complex and likely mediated by multiple factors. Further work is needed to understand the relationship between stress and regeneration.

Caylin Walp ’20, Dual Major: Biochemistry/Spanish

The Exploration of Sexual Dimorphism in Danio rerio: Chronic Stress and Reproduction

Abstract:

In humans, the primary receptor family for serotonin in neural tissue are the neurotrophic tyrosine kinase receptors (NTRKs), which have been implicated in the development of serotonin-linked mental illness in humans. NTRK-2 expression arises from a positive feedback mechanism initiated by reception of serotonin by substrate-specific receptors on their neural surfaces, which down-regulates freely available cortisol, the biological marker for stress response (Ghisleni, Gabriele et al., 2012.). This pathway is also observed in zebrafish, *Danio rerio*, making them the preferred model system for research in serotonin or dopamine-linked mental illness pathways. Current treatment for serotonin-linked mental illness has been correlated with sexually dimorphic response to treatment. Stress response has also been hypothesized to be dimorphic in humans and other mammals based on biologic necessity. While sexual dimorphism has been observed in *Danio rerio*, the effect of sex on stress metabolism has not been explicitly studied, nor documented, despite the importance of the *Danio rerio* model in this line of research. It is hypothesized that females are less able to metabolize cortisol,

and in turn, will have a more dramatic response to stress physiologically. After a 14-day adjustment period, juvenile adult AB wild-type zebrafish of both sexes were exposed to 60-minute periods of acute restraint stress over 14 days to elicit a chronic stress response. Stress levels were assessed by quantitating the presence of cortisol in whole tissue samples using an enzyme-linked immunosorbent assay (ELISA), and dimorphic physiological and reproductive responses were assessed.

Caylin Walp (Honors) ’20, Dual Major: Biochemistry/Spanish

Reygadas: La intersección de cinema lenta y extremo en filmografía latinoamericana

Abstract:

Normalmente, vivimos como zombis cada momento banal de la vida, desde cepillarse los dientes hasta manejar por tráfico. No obstante, en el cine Hollywoodiense contemporáneo, hay muchas escenas espectaculares – violentas y rápidas – en que el fotograma cambia cada 7 segundos (MacDonald 26). En este cine tradicional, el espectador nunca tiene tiempo para sentir nada complejo ni complejamente. En el cinema lento, en cambio, la audiencia tiene el tiempo necesario para ponerse en la situación y contemplar lo que podría hacer en ella, además de reflejar en las implicaciones, ambos sociales y políticos, dentro el ambiente social de la obra y el mundo “real” nuestro. En cambio, en esos momentos tenemos tiempo para reflejar de una manera más profunda- una cosa muy difícil por los espectadores estadounidenses o los que sigan filmografía tradicional. *Japón*, por Carlos Reygadas se reconoce hoy en día como un gran ejemplo de cinema lento, pero en esta misma obra, Reygadas experimentó también con cinema extrema para enfatizar su perspectiva comprometida sobre asuntos como el sexo y la violencia. Como explica Troy Bordun, quien teoriza el cine extremo, este género se basa en escenas gráficas de violencia excesiva o sexo al borde de la pornografía (1-20). En esa obra, la audiencia tiene que afrontar una escena discordante, inmediatamente seguido por una escena lenta con tiempo suficiente para pensar en el mensaje de la obra lo que precedió ese espacio muerto. Es una manera ingeniosa de forzar la audiencia entera en pensar sobre una tópica poco hablado.