

STUDENT RESEARCH DAY 2020 TITLES AND ABSTRACTS – May 1

Poster Presentations:

Taylor Baker '21

The Effects of Environmental Stress on the Equine Immune Response to "Sarcocystis neurona"

Abstract:

Equine Protozoal Myeloencephalitis, also known as EPM, is not yet completely understood. This neurological condition primarily develops when equines are exposed to the parasite *Sarcocystis neurona*, yet there are a wide array of symptoms and degrees of influence it has on its host. The majority of horses that come into contact with this parasite do not develop EPM while a select few, do. It has been reported that over 50 percent of horses have been exposed to parasites which cause EPM, but only about 1 percent display clinical signs of the disease (American Association of Equine Practitioners). Scientists are determined to understand the genetic and environmental characteristics which may make some horses more susceptible to developing EPM. Some researchers have begun to explore specific stressful situations, such as trailering, as a cause of the different individual equine immune responses to *S. neurona*. This study aims to determine whether a prolonged stressful environment may be a factor in altering the ability of equines to develop *S. neurona* antibodies. In collaboration with local Thoroughbred owners and the University of Kentucky, approximately 24 horses will be divided into two groups; those that have recently resided at a racetrack and those that have resided at a lesson or low-stress barn for several years. Blood samples will be drawn and analyzed using Western Blot techniques and Enzyme-Linked Immunosorbent Assay (ELISA), to determine the cortisol levels and the amount of *S. neurona* antibodies present. The anticipated results are that the recently retired racehorses will have higher cortisol levels and lower antibody titer, while the horses residing at a lesson barn will have lower cortisol levels and higher antibody accumulation. The expected correlation is that the more stressful environment will suppress the immune system, leading to a decrease in the production of *S. neurona* antibodies, thus, increasing the risk for developing EPM.

Brooke Barnhart '21, Major: Biology

The Effects of Lemongrass (Cymbopogon Citratus) Essential Oil on the Rat Gut Microbiome

Abstract:

The gut microbiome consists of trillions of microorganisms that reside in the intestine. There are at least 1,000 different species of bacteria in the gut microbiota of mammals. The bacteria in the gut have important functions in digestion and the immune system. While research into the composition and role of the gut microbiota is ongoing, there are known links between the gut microbiome and mood, mental health, autoimmune diseases, endocrine disorders, skin conditions, and cancer. To promote a healthy gut, individuals should lower stress levels, get enough sleep, eat slowly and not too much, stay hydrated, take probiotics, check for food intolerances and maintain a proper diet. The microbiome is disrupted by genetics, for instance, parturition, breastfeeding, medications (especially antibiotics), and diet. Certain dietary supplements may be used to support a balanced gut microbiome and improve

general health. Essential oils are compounds extracted from plants and are often used in topical treatments and/or aromatherapy. *Cymbopogon citratus* (lemongrass) is a tropical grass often used in cooking and different types of medicine. Lemongrass essential oil is known to have antibacterial properties, to prevent wound infection, and to provide protection against damage in the stomach. The purpose of this study is to determine if the ingestion of lemongrass essential oil can help to promote and sustain a healthy gut microbiome and to observe its effects on different types of bacteria. Different doses of lemongrass essential oil will be administered daily for six weeks via oral gavage to three groups of rats. Rat models will be used because they share similar characteristics with the human gut microbiome. The control group will receive the vehicle only, another group will get half of the recommended safe dosage of lemongrass essential oil and the last group will get the maximum safe dosage. The gut microbiota will then be analyzed by collecting fecal pellets and isolating, culturing, and quantifying the intestinal bacteria for comparison using selective media and culture conditions. A dietary supplement of lemongrass essential oil may help to promote and sustain a healthy and balanced gut microbiome.

Tiffany Carver '21

The Effects of Taurine Supplementation with a Grain-free Diet on Cardio Health in Rats

Abstract:

Between January 2014 and April 2019 there were a total of 524 (515 dogs, nine cats) cases of dilated cardiomyopathy (DCM) reported to the FDA. DCM is a disease that affects the muscle of the heart causing it to thin and impairs the ability to pump blood through the vascular system properly. A possible explanation of these cases may be that a grain-free diet causes low taurine levels, which is an important factor in proper cardiac health. Research has indicated that taurine supplementation reverses the effects the grain-free diet causes. Using a rat model, this study will investigate if taurine supplementation in a grain-free diet prevents and/or reduces the development of DCM. The animals will be assigned to one of three test groups: group one will receive a regular commercial diet, group two will receive a grain-free diet, and group three will receive a grain-free diet with a taurine supplement. Animals will be maintained on these diets for four months. Physiological parameters such as heart rate, blood pressure and body mass will be collected weekly. Animals will be euthanized, and the hearts will be fixed and analyzed by morphometric parameters. If there is a correlation between low taurine levels and DCM, it is anticipated that rats receiving the grain-free diet will exhibit an increased heart rate, coughing, possible loss of appetite, and weakness. These findings could help dog and cat owners who feed grain-free diets prevent DCM in their animals by adding taurine supplement.

Lauren Monahan '21, Major: Biology

The Effects of Propafenone, an Arrhythmic Drug, on Heart Development in a Chick Embryo Model

Abstract:

Data estimates that 5 percent of the U.S population has some form of arrhythmia, an improper beating pattern of the heart, and one in four adults could develop an arrhythmia in their lifetime. The drug Propafenone is an antiarrhythmic drug used to treat ventricular arrhythmias. Propafenone has been

found to cross the placental barrier, which raises concern about any developmental effect on the fetus. However, stopping treatment for the arrhythmia could cause more significant problems for the mother and fetus. Research indicates that Propafenone affects fetal development when administered during mid-gestation; however, no research has been found on exposure in early development. Since the heart is one of the first organs to develop early in gestation, any complications with its development due to Propafenone would be unknown. This study will investigate if the arrhythmic drug, Propafenone, has any effects on embryo heart development by using chick embryos, a model for human development. Embryos will be assigned to one of three groups: control saline treatment and two different dosages of Propafenone. Injections will be administered through a shell port into the fluid surrounding the embryo at hour 23 of development, two hours before the stage of heart development. The experiment will be terminated at hour 42, hearts removed and morphometrically analyzed. The heart will be measured in width, height, the thickness of the ventricle walls, and any other deformities will be recorded. The results of this study will allow for a better understanding of this drug and its potential effects during early fetal development.

Megan Morningwake '21, Major: Biology

The Use of Eyes Absent Gene from Drosophila in the Treatment of Retinoblastoma

Abstract:

The original topic of interest was the effect of the eyes absent gene (EYA1) in embryonic development of drosophila. However, recently this has been narrowed to the point of now focusing on the effect of the eyes absent gene from drosophila in cancer treatments in humans. So far, this gene has been investigated to have some type of relationship to treating colon cancer, ovarian cancer, breast cancer, and many other forms of cancer. The specific human cancer that has been unexplored in correlation with this gene is the eye cancer, retinoblastoma. Therefore, this research is aimed to find if there is a correlation to treating retinoblastoma with eyes absent gene that is present in drosophila with the use of various dosages of EYA1. These results would be useful in determining the course of treatment a human with this cancer can take. Additionally, the research would be useful in closing the gap that separates humans and the animal kingdom, specifically fruit flies. It is amazing that a comparable link to flies and humans exists given the relative size of the two species. Even so, it is known that this gene is linked to the reason for eye development in drosophila embryos. It would only make sense that this gene would then be linked to the eyes of humans in some way given the purpose this gene serves. In eyes of Drosophila, it is used to determine if an eye will develop at all. Then again, names and definitions for uses can often be misleading; hence, the reason for this research to be conducted, clarity. People deserve answers that will aid them in big decisions regarding their own health and the health of loved ones. This research will hopefully provide those answers, as well as answer any lingering questions that may have existed considering the type of eye cancer itself and/or the gene in question.

John Sollenberger '21

The Effects of Cannabidiol (CBD) Application on the Wound Healing Process

Abstract:

Cannabidiol (CBD) is one of the 113 identified cannabinoids in the cannabis plant. CBD has been shown to help with inflammation, anxiety, depression, and cancer growth. CBD binds to cell receptors CB(1) and CB(2), resulting in positive effects. This study aims to show the effects CBD has on wound healing using an animal study. The rate of healing on wounds will be compared between those wounds treated with CBD and those not treated with CBD. The effects of CBD oil on the skin and any potential coloration that might occur as a result of CBD application will be examined by applying CBD to a non-wounded area. These results will be analyzed to see if the CBD treated wound healed faster than the naturally healed wound created. Positive results would lead to more treatment options for wounds and have greater implications for the future of CBD as a medicine.

Elsa Tabaku '21, Dual Major: Biochemistry/Spanish

The Effectiveness of Ceramide and Azacytidine as a Treatment for Triple-negative Breast Cancer

Abstract:

Breast cancer is the second-leading cause of death in women worldwide. Triple-negative breast cancer (TNBC) is defined by the lack of expression of estrogen receptor(ER), progesterone receptor (PR) and human epidermal growth factor receptor 2 (HER2) proteins. TNBC represents approximately 10–15 percent of all diagnosed breast cancers and has more limited treatment options and a poorer prognosis. Chemotherapy is one of the treatment options used to treat a variety of cancers, including breast cancers, but the effective dosages often cause damage to healthy cells and tissues. Azacytidine (AzaC) is a commonly used chemotherapeutic agent. Ceramides (CER) are considered tumor suppressor lipids and promote cell cycle arrest. The purpose of this study is to determine the efficacy of using these two drugs in combination to induce apoptosis in MDA-MB-231 (TNBC) and MCF10A (healthy) cells. The MDA-MB-231 and MCF10A cell lines will be cultured and then treated with AzaC and CER separately and in combination. An MTT assay will be used to determine cell viability and the rate of cell proliferation, and an apoptosis assay will measure cell death. It is hypothesized that AzaC and CER combined will induce higher rates of cancer cell apoptosis than either compound alone and will have no effect or minimal negative effect on the healthy cells. These findings would improve current treatments for TNBC by having a higher rate of effectiveness with minimal damage to healthy cells.

Cheyenne Yoder '21, Major: Biology

Bivalves used as Bioindicators for Escherichia Coli Detection

Abstract:

Freshwater bivalves reside in many different water systems and play a vital role in keeping our waterways and ecosystem healthy. Bivalves are filter feeders and are exposed to large numbers of bacteria. Among those bacteria that they can be exposed to are pathogens such as Escherichia Coli. This study will observe the bacteria found inside the gut microbiomes of bivalves to test waterways for pathogens. The environmental parameters will focus on the waterways of the Conococheague Creek impacted by smaller polluted areas, as well as larger polluted areas. Freshwater bivalves will be collected from five different sites along the Conococheague Creek over a four-week period. The bivalves collected will be separated by site and size. Then, the meat of the bivalve and shell liquor will

be homogenized in a blender for one minute at 15,000 revolutions per min⁻¹. Afterward, the homogenate will stand for 15 to 20 minutes at room temperature and be further diluted to obtain a 1:10 suspension before inoculation into cultured media. The solution will then be spread and grown on general media for the quantification of all bacteria and on selective media to determine the number of E Coli. Serial dilutions such as the 1:10 dilution will be used in calculating the population density of bacterial cultures. Samples of biofilm will also be scraped off of rocks in the surrounding environment to see if the bivalves are selectively filtering out E Coli. Looking ahead, this project will determine whether bivalves could succeed in detecting pathogens such as E Coli in waterways.

Jacob Young '20, Major: History and Political Science

The History Behind the Parthenon Sculptural Program

Abstract:

The Parthenon is one of the most recognizable buildings in the world and has been visited by millions of people throughout history. The building uses ancient Greek history to show the power of the people who lived there and can be seen as a metaphor for their victory over the Persians in the Persian Wars. Each section of the sculptural program can individually be studied to find different historical meanings that all combine to add to one shared meaning. By studying the four main parts of the sculptural program, the pediments, metopes, frieze, and the statue of Athena, we can not only learn about history but also about the people of Athens and their beliefs. Each section tells us a different story about the Athenians, from the birth of Athena in the Pediment to the Panathenaea Festival in the Frieze, each part of the sculptural program has a special meaning to the people of Athens. Scholars have debated the meaning of these sections of the sculptural program and through these debates we learn more about the history and people of ancient Greece.

BIO 270: Biology of Cancer

Brain Cancer (Glioma): Jonae Covington '22

Waldenstrom's Macroglobulinemia: Delaney Kegel '22

Teratomas- The "Monster" Tumors: Jaelynn Ruble '21

Primary Peritoneal Cancer: Meghan Thompson '21

Disseminated Neoplasia in Bivalves: Cheyenne Yoder '21

Abstract:

Join the students enrolled in Bio 270, Biology of Cancer, and engage with them as you learn about various types of cancer. Posters will reflect a comprehensive presentation of knowledge that the students gathered as they researched specific forms of cancer. This student-centered, active learning experience incorporates the scientific poster presentation to foster the learning of cancer biology. Students successfully mined primary literature to collect information ranging from epidemiological data on incidence and population trends, suspected correlations to exposures and heritable factors to current and trending diagnostic and therapeutic approaches. Students also include information gathered from their experiential component in which they contacted and/or interacted with a variety of experts on the frontlines of cancer biology, ranging from oncologists and researchers to foundations

and support groups. An overlying goal of the poster project was to substantially enhance the depth of understanding of cancer biology, as well as provide a forum for an educational opportunity to convey facts and concepts about cancer to the broader community.

ENV 116: Introduction to Environmental Science II

Adrianna Broome, Marianna Davidova, Samantha Hall, Brenden Johnson, Spencer McNamee, Bailey Miller, Madison Smith, Danielle Stafford, Blanca Villeda, Abigail Wilson, Kai Wyatt

Fifty Years of Earth Day

Abstract:

Referencing Wilson College's own newspaper, The Billboard, students in Introduction to Environmental Science II acknowledge the 50th anniversary of Earth Day through discussions on subjects such as pesticides, policy, air pollution, population, trash and water, specifically looking at how discussions and emphasis on these categories have changed over the years. Although attention has shifted to the environment and our impacts on it, there is still much work to do to improve the earth's conditions for the benefit of all.

HSC 216: Human Anatomy and Physiology II

Chronic Obstructive Pulmonary Disease: Taylor Baker, Johnathan St. Clair, Alecia Hamilton, Odessa Kalathas, Ethan Phillips, Abigail Rosenberry

Ehlers-Danlos Syndrome (EDS): Amber Beam, Dino Hamzabegovic, Dereck Ivey, Tia Jones, Hanna Mowery, Kaitlyn O'Shea

Abstract:

Ehlers-Danlos syndrome (EDS) is a connective tissue disorder that can be inherited and is varied both in how it affects the body and its genetic causes. It is generally characterized by joint hypermobility (joints that move through a range of motion further than normal), skin hyperextensibility, and tissue fragility. EDS does not have a current treatment therefore the disease is known to be lifelong. This research provides an overview of the normal physiology of connective tissue and the integumentary system, how improper development can cause EDS and current/developing treatments for the condition. The integumentary system, commonly referred to as the skin, provides a physical border of protection between the external environment and underlying organ systems. The integumentary system is highly vascularized and composed of two main layers, the epidermis and the dermis. Connective tissue connects, supports, binds, or separates other tissues or organs, typically having relatively few cells embedded in an amorphous matrix, often with collagen or other fibers, and including cartilaginous, fatty, and elastic tissues. Ehlers-Danlos Syndrome, or EDS for short, is a group of disorders that affect the connective tissues of many parts of the body including the skin, bones, blood vessels, and various organs. Defects in the connective tissue can cause symptoms as mild as loose joints and hyperelastic skin. Hypermobility is the most common effect of EDS, giving joints a large range of motion. Infants who develop EDS often have hypotonia, or low muscle mass, which can delay

development when it comes to walking, sitting, or standing. Many people with EDS have soft velvety skin which stretches easily and is very fragile. There are no cures for EDS, but current treatments include physical therapy to rehabilitate joint and muscle instability, surgery to repair damaged joints and prescription medication to minimize pain.

Hypertrophic Cardiomyopathy: Adriana Embly, Caeley Etter, Lexie Goshorn, Bethany Lavin, Kayleigh Layfield, Kylea O'Donnell, Jordan Yeager

Abstract:

According to the Centers for Disease Control and Prevention, approximately 6.5 million adults in the United States are diagnosed with heart failure. In 2017, heart failure was the contributing cause of 1 in 8 deaths. Hypertrophic cardiomyopathy (HCM) is the second most common form of heart muscle disease. HCM is a form of heart failure where the heart cannot keep up with its workload, and the body's high demand for oxygen and nutrients. The term "hypertrophic" refers to abnormal growth of muscle fibers in the heart, thickening the heart's walls and making the heart stiffer. The stiffness caused by HCM makes it difficult for the heart to relax, so the filling of the chambers become impaired and prevent the heart from pumping. HCM is very common in young athletes and can be an inherited condition where the walls of the heart thicken, causing a decrease in electrical conduction. Symptoms, especially severity, depend on the extent and location of the disease—however, they may include murmurs, dyspnea, angina, lightheadedness or dizziness, syncope (fainting), arrhythmias, exercise intolerance and/or palpitations. Healthy preventative measures include regular exercise, dietary fluid, sodium restriction and attention to weight gain. Diagnostic testing includes but is not limited to genetic testing, echocardiograms, stress "exercise" echocardiograms, electrocardiograms, cardiac MRI's and a chest x-ray of venous congestion or interstitial edema. A patient who has experienced prolonged HCM may be eligible for a cardioverter-defibrillator implant (ICD), a septal myectomy or a heart transplant. Symptomatic medications that are provided to HCM patients include beta and calcium channel blockers. Lastly, patients may be prescribed anti-arrhythmic drugs—such as disopyramide and anticoagulants, to reduce risk of blood clots and manage atrial fibrillation. Due to contemporary cardiovascular treatments the long-term outcome for people with HCM is generally exceptional with a low mortality rate; only a small number of patients are at risk for disease-related events and occurrences, including sudden death.

Celiac Disease: Joseph Cofer, Raqayyah Debeary, Kevin Finn, Kaesey Greene, Joshua Harvey, MacKenzie Kling

Abstract:

Celiac disease is an autoimmune disorder affecting the villi of the small intestines. The villi are fingerlike projections that extend into the lumen of the small intestine, their function is to increase the surface area of the small intestine allowing for increased rate of absorption. The ingested protein gluten triggers an autoimmune response in the small intestines that over time damages the epithelium of the villi. The absorption of nutrients by the damaged villi decreases, causing a nutrient deficiency in people with the disorder. The effects of Celiac disease extend far beyond the small intestines, other organs can incur problems such as osteoporosis in bones, lactose intolerance, and abnormal functions

of the liver and pancreas just to name a few. People with Celiac disease suffer from symptoms such as abdominal pain, vomiting, diarrhea and many more. There is currently no medical treatment for Celiac disease, a healthy gluten-free diet is promoted and the most efficient way to handle the effects and symptoms of this autoimmune disease. If managed properly Celiac disease does not affect activities of daily living and is non-life threatening. Only when a gluten-free diet is not followed does the damage caused to the small intestines becomes potentially life-threatening.

Muscular Dystrophy: Elizabeth Clouser, Alexis Cook, Jenna Mongold, Alexis Pflumm, Eduardo Rosado, Katelyn Roth, Jacob Whittington

Abstract:

Muscular dystrophy is a group of inherited diseases in which the muscles that are responsible for movement, otherwise known as voluntary muscles, become damaged and weaken over time. Muscular dystrophy encompasses many forms of genetic diseases in which mutations occur on genes that are responsible for producing proteins that build and uphold healthy muscle. Muscular dystrophy is genetic, therefore an individual with a family history of the disease has a higher risk of acquiring it. Diagnosis of these diseases usually involves a series of tests that include a family medical history evaluation, a muscle biopsy test, a blood enzyme test, and a genetic (DNA) test. The most common form of muscular dystrophy is Duchenne muscular dystrophy. Duchenne muscular dystrophy occurs primarily in males and typically appears early in childhood. It affects nearly 1 in every 3,500 male births. The second most common form of muscular dystrophy is Becker muscular dystrophy, which occurs in nearly 1 in every 30,000 male births. Becker muscular dystrophy has a later onset and usually appears in the teens or early adulthood. The last form of muscular dystrophy studied in this research is Oculopharyngeal muscular dystrophy. This type of muscular dystrophy weakens the muscles around the upper eyelids and part of the throat known as the pharynx. These three forms of muscular dystrophy, along with all the other existing forms, have no cure. However, medications and treatments can slow down the course of the disease. Common medications and treatments used to treat muscular dystrophy include Prednisone, surgery, physical therapy, occupational therapy, speech therapy, wheelchairs, and other rehabilitative devices.

NUR 414: Nursing Leadership

Benefits of Early Ambulation in Intensive Care Unit Patients: Sarina Smith, Rachel Disilvestri, Morgan Wallech, Jordan Schubert, Chelsea Burkett

Sleep Deprivation in the Hospital Setting: Nichole Boland, Hanna Guyer, Allison Shockey, Atley Ashway

How does the implementation of female external catheters influence the development of CAUTIs compared to the use of indwelling urinary catheters?: Hannah Fittry, Kristyn Davis, Geneva Martin

Implementation of Hand Hygiene Protocols in the Intensive Care Setting: J. Chaelle Green, Tara Harmon, Ashley Shatzer, Brooke Delano, Caroline Watson

Lavender Aromatherapy in Critical Care Units: Tashia Caldwell, Brenna Pynne, Sara Reese, Sarah Stitely

Most Effective Bedside Shift Report Modalities for Nurses and Patients: Brianna Campbell, Megan Flickinger, Chloe Prosser, Emma Golibart

How Bedside Reporting Improves Patient Outcomes: Sarah Gipe, Elsa Schaefer, Kimberly Nickey, Mary Marzouk

PSY 380: Cognitive Psychology

The Impact of Memory on Eyewitness Testimony: Briana Rubio

Abstract:

Over the years, there has been plenty of information gained to understand human memory and how sometimes memory can lead to errors and the phenomenon of false memory. It is important to bring up past cases because these original cases have helped the field grow. In some cases, people seem to remember entire events that did not happen at all. Episodic memory plays a key role in people remembering events and how that can play either a good way or bad way in eyewitness memory. Eyewitness testimony usually helps cases provide reliable evidence but when that gets hindered how does memory remember what actually happened? Conforming to incorrect memory reports of co-witnesses can have major impacts on subsequent forensic investigation and court reports. It is proposed that memory conformity appears due to informational influence. Perceptions of credibility drive memory conformity. The co-witness' desires to give accurate information and report the co-witness' version because they perceive the co-witness as being more credible. These are ways that memory conformity has a major impact on eyewitness testimony.

White Noise and Performance in Children with Attention Deficit Hyperactivity Disorder: James Pasaribu, Cheyenne Yoder

Abstract:

White noise has been shown to improve attentional abilities in children with Attention Deficit Hyperactivity Disorder, also referred to as ADHD (Soderlund & Sikstrom, 2007). The research question we are interested in is if the type of white noise used has a differential effect on the attentional ability of children with ADHD. Our research method will include presenting three types of white noise (non-vocal/instrumental, male voice, and female voice) to children with ADHD, as well as children without ADHD (e.g., control group) while they are performing executive functioning tasks as outlined in Helps, Banford, Sonuga-Barke, and Soderlund (2016). We expect to find that non-vocal/instrumental white noise will positively affect performance on all tasks while vocal white noise will positively affect performance only on tasks that do not require lexical decision-making or the use of vocabulary/language processing abilities.

The Impact of Concussions on Athletes' Cognition: Cierra Beaver, Cole Rinehart

Abstract:

Many athletes today suffer from concussions and other minor closed brain injuries such as contusions (e.g., bruises). Research has shown that athletes who suffer from these types of brain injuries are more likely to lose their ability to quickly react as well as pay attention for long periods of time (Pearce et al., 2015). To determine how the severity of concussions differentially impact athletes' cognitive abilities, four groups will be compared in this study: no concussion, mild concussion (1-2 diagnosed concussed episodes), moderate concussion (3-4), and severe concussion (5 or more). Participants will complete two types of cognitive tasks to assess their reaction times (RTs; i.e., speed) and their attention (i.e., accuracy). RTs, or the amount of time it takes to respond to a stimulus, will be measured using the Stroop Task, which requires participants to make a keypress as quickly as they can to determine which color ink a color word is presented in (e.g., if the word *blue* is presented in *red* ink, the participant should press 'r' for red instead of 'b' for blue). Attention, or the process of selectively concentrating on a stimulus for a sustained period of time, will be measured by calculating the accuracy of participants' Stroop Task trials (e.g., pressing 'r' for the word *blue* presented in *red* ink), as well as how much information participants can recall from a standard, one-hour class lecture. It is predicted that athletes with no or few mild concussions (0-2) will outperform those with moderate-to-severe concussions (3 or more) on both assessments. However, participants with severe concussions are expected to have the lowest performance overall. If the expected results are found, this study would provide additional insight into whether more precautions need to be taken for high contact sports so that athletes can avoid losing substantial cognitive abilities from too many concussions.

VMT 210: Parasitology

Veterinary Parasitology Client Information Brochures

Abstract:

The students of VMT 210: Parasitology were challenged to create a brochure for veterinary clients about a parasite endemic to this area. Chosen from a pre-approved list, the students focused on informing clients about the parasite's lifecycle, what clinical signs might occur in the specific animal that the parasite infects, and what treatment is available. The top four brochures were chosen for presentation at Student Research Day.

VMT 320: Lab Animal Science

Training and Enrichment of Lab Animal Species

Abstract:

The students of VMT 320: Lab Animal Science completed a project in which they worked with a lab animal of their choice for training and enrichment. The students researched their species, working to find enrichment in a variety of forms, including food, toys, and housing. Students were challenged to train their animals using positive reinforcement. The top four projects were chosen for a poster presentation on Student Research Day.