Seventeenth Annual
HBU Student Research Symposium

Celebrating Over 50 years of Excellence

Sponsored by the HBU Alumni Association and
the HBU Institutional Review Board

Book of Abstracts
2019
A MESSAGE FROM THE
PRESIDENT

At HBU, we believe that the Celebration of Scholarship Symposium is a very important event. Too often students gain the impression that carefully researched scholarship is something only for faculty members or graduate students and that it is no more than another task to be fulfilled on the way to receiving a graduate degree, landing an academic position, or increasing one’s job security.

The truth, however, is that scholarship is at the very core of the mission of the University. We do not merely freeze the scholarly enterprise at any single point in time and deliver it to students waiting to memorize and then perform at exam time. The real work of education certainly includes mastering a received set of materials, but it also necessarily involves using that mastery to launch further investigations. Research keeps all of us sharp because it requires that we constantly acquire and synthesize new information and test it against the old.

The result is not what one might expect. Rather than always undermining traditional beliefs and assertions, these investigations just as often bolster them or add a new twist that no one has thought of before. Research stimulates original thinking and sharpens skills of analysis. It is through the process of thinking, researching, writing, and exploring that one acquires a sense of real pleasure in seeking after the truth.

I believe, as many have said, that all truth is God’s truth and we should be interested in discovery and not fear to ask any question. For that reason, I salute our students who have taken their first steps into the world of serious scholarship and the mentors who have trained and helped them. These students have taken the academic quest directly to heart, and they will realize the benefits of it in their lives and work for a long time yet to come.

Dr. Robert B. Sloan
HBU President
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The HBU Institutional Review Board seeks to increase awareness of current research and scholarship at Houston Baptist University by conducting an annual symposium in celebration of the scholarship in undergraduate and graduate courses.

The HBU Institutional Review Board would like to acknowledge the HBU Alumni Association for their generous donation to the Celebration of Scholarship at HBU.
POSTER PRESENTATIONS

ANXIETY AND THE PERCEIVED EFFECTS ON PERFORMANCE OF ATHLETES

Acosta, Robert
Dr. MaryCatherine Harmon

The current study investigates the relationship between anxiety and the perceived performance in college athletes. The target population is Division 1 athletes at a southern private university in the Southland Conference, with no limitations regarding the gender, sport, or age of the participants. Prior to handing out the survey all athletes were asked by the researcher to answer the questions in the survey as if prior to entering competition. The researcher handed out the Physical Self-Efficacy (PSE) in person to each participant. This PSE scale measures the athlete’s perceived performance and their self-efficacy. The participants’ PSE scores were then correlated to anxiety levels. The researcher surveyed a minimum of 24 athletes of any sport, 12 males and 12 females. The current study reports data answering the questions: What are athletes’ physical self-efficacy perception prior to competition and does gender affect their physical self-efficacy perception? The data from the current study can add to the body of literature in regards to measurements on perceived self-efficacy of athletes and how it correlates to anxiety.

THE RELATIONSHIP BETWEEN DEMOGRAPHICS, HEALTH VARIABLES, AND ACADEMIC ACHIEVEMENT

Anderson, Eric
Dr. Renata Nero

Abstract not available

THE PERCEIVED EFFECTS CAFFEINE HAS ON SPORT PERFORMANCE IN ATHLETES

Ardoin, Jeremy
Dr. MaryCatherine Harmon

There is still debate amongst researchers if caffeine has actual benefits in sports performance. Research has shown that caffeine can affect the human body psychologically and physiologically when ingested by male and female athletes. Caffeine has been shown to affect the alertness and mood in individuals while also giving athletes an advantage in pain tolerance enabling their workload past their normal capacity without having side effects such as headaches and nausea. This study will examine what advantages caffeine can give male and female athletes from sports such as football, volleyball, soccer, and softball. The participants will complete a three part survey that consists of the following questionnaires such as the POMS, MYOP2, and WBQ. These surveys measure the physiological and psychological effects that caffeine has on participants. Participants from this study play division one sports at a private school in Texas and all the information will be confidential under the researcher. This study will take a look at the different forms of caffeine and what doses have the highest perceived impact on an individual’s performance in their sport. The researcher will investigate the perceived effects that caffeine can have on overall sports performance.

DEMOGRAPHICS OF THE SPECIAL EDUCATION CLASSROOM: OVER REPRESENTATION OF THE AFRICAN AMERICAN MALE ELEMENTARY – HIGH SCHOOL

Banks, Kathy
Dr. John Spoede

Is Being a Black Male the only reason for the high percentage of African Americans boys being placed in special education today? When one thinks of special education, one might think of children with disabilities having to be educated in smaller classes with fewer distractions, and more attention from the teacher. However, this is not the case for many children who are in one of the special education classes within the United States. It is especially not the case for those African American males displaced in a special education program for reasons other than a disability. Prior to 1975, children of color and those born with disabilities were exclude from public education. It was not until lawsuits such as Mills v. Board of Education, which made it illegal to discriminate against disabled individuals and Brown v. Board of education, which disallowed segregation of children in the public school system that things began to change. If laws are in place to protect the disabled, and children from discrimination in public schools, Than why are there so many Black Males being disproportionately placed in Special education than their White Male peers?

AUTISM: ASSESSMENTS USED IN THE SCHOOL SETTING TO DIAGNOSE

Conley, Tara L.
Dr. Charlotte Fontenot

Autism is known as a group of related neurodevelopmental disorders of childhood marked by persistent deficits in social communication and interaction, and by restricted repetitive patterns of behaviors and interests. The number of children with
autism spectrum disorder (ASD) has risen sharply from a prevalence rate of approximately 1 in 150 children in the year 2000 to 1 in 68 children in 2012 (Centers for Disease Control and Prevention, 2016). According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), diagnostic criteria for ASD includes deficits in social communication and interaction as well as restricted and repetitive patterns of behavior, interests, and activities (American Psychiatric Association, 2013). A comprehensive assessment for the identification of autism spectrum disorder typically evaluates a child’s total functioning which includes intellectual, neuropsychological, communicative, behavioral, and emotional (Goldstein & Ozonoff, 2018). This consensus on the majority of diagnostic criteria provides a good foundation for examining and evaluating individuals with possible ASD (Goldstein & Ozonoff, 2018). This research study identifies commonly used comprehensive and multidisciplinary diagnostic evaluations that are used for an individual’s optimal care. All participants will take away from this study valuable insights regarding instruments used to evaluate children with autism.

FANTASY SPORTS MOTIVATION AMONG COLLEGE STUDENTS

Cook, Rhett
Dr. MaryCatherine Harmon

College students are particularly susceptible to joining into sports wagering leagues because they “are exploring their newly-acquired independence and often partake in a wide diversity of high-risk behaviours” (Machica, et al. 2016, 636). The current study is aimed to find the motivating factors that influence college student’s participation in fantasy sports (a form of sports wagering). There are twelve factors included in the study which are: 1) game interest, 2) becoming a general manager/head coach, 3) love for the sport, 4) prize, 5) competition, 6) entertainment value, 7) bonding with friends/family, 8) social interaction with other participants, 9) knowledge application, 10) hedonic experience, 11) escape, and 12) substitute for a losing team. The researcher used an anonymous online survey to collect the data from college students asking participants three questions relating to each motivating factor using a 5-point likert scale. The data can then be used to further research the motivation behind participating in fantasy sport. This research should be used to learn more about addiction due to fantasy sports close association with gambling; the information could also be used to compare to other groups such as older adults, as well as broken down by race or gender.

THE RELATIONSHIP OF PHYSICAL ACTIVITY AND BMI WITHIN THE DIFFERENT SCHOOLS AT A UNIVERSITY

Cruz, Maria
Dr. MaryCatherine Harmon

The risk of obesity and sedentary life keeps increasing in the United States affecting millions of people each year. The current study sought to find a relationship between physical activity and BMI within the different schools at a university. The researcher tested participant’s BMI with a bioelectrical impedance analysis tool and surveyed them on their wellness behaviors, both physical and dietary. The purpose was to obtain statistical evidence on which school had been pursuing the healthiest life style based on their BMI and survey responses. This will stimulate further questions that investigate why students from a particular school would be more inclined to make more health-conscious decisions than their peers. The current study included students from the School of Nursing and Allied Health, the School of Christian Thought, the College of Science and Mathematics, the College of Education and Behavioral Science and the College of Business. Twenty students from each school were randomly tested and compared. Overall, the results obtained from the research will conclude whether young adults are aware of their health and are taking the initiative to live a healthy life style. With this data, universities can implement programs that can educate students and guide them towards living a healthier life.

ENERGY CONSERVATION IN GOLF WHEN USING A PUSH CART VERSUS CARRYING A GOLF BAG

Cummings, Kaitlyn
Dr. MaryCatherine Harmon

The purpose of the current study is to evaluate the need to conserve energy and minimize physical and mental stresses on the body during a round of golf. Energy conservation can reduce fatigue and weakness during a golf round that leads to poor biomechanics along with higher risks for injuries. There is little to no research done on golfers and the fatigue that carrying a golf bag can cause during a round of golf. However, there are studies similar to carrying heavyweight that can be related, such as backpacks and hiking packs. Carrying a golf bag, as well as other heavy items on the shoulders, could lead to musculoskeletal disorders along the spine including high back pain and trunk pain along with shoulder and cervical. The participants for the current study were seven female collegiate athletes from a division one golf team. Each participant was given the Hecimovich-Peiffer-Harbough exercise exhaustion
scale (HPHEES) survey and the standardized nordic questionnaire for the analysis of musculoskeletal symptoms. The researcher will use this information to test exhaustion rates and discomfort of golfers that carry a bag versus when they use a push cart.

EVIDENCE-BASED STRATEGIES FOR INCLUSION

Elmore, Kima
Dr. Charlotte Fontenot

The present teachers are asked to educate all students using evidence-based strategies in inclusive classrooms. This project will review six effective evidence-based practices for inclusive classrooms that can increase the success of students with special needs. Instructional strategies explored in this project are one team teaching, station teaching, alternative teaching parallel teaching, one teach/one assist, and one teach/one observe. Knowledge of evidence-based instructional methods can be used to close the gap in special education.

PERCEIVED PHYSIOLOGICAL EFFECTS ON PROPER BIOMECHANICS

Endsley, Daniel
Dr. MaryCatherine Harmon

Participation in youth baseball is at an all time low but in that same amount of time, arm injuries in youth baseball players are on the rise, Fleisig & Andrews (2012). The current study researched what has been causing the rise of throwing injuries in youth baseball players, which has been tied back to the proper teaching of pitching biomechanics. The improper teaching of pitching biomechanics can lead to fatigue, overuse, arm pain, and psychological injuries as well caused from the athlete having to sit out. The research done in the current study analyzed different types of throwing injuries, how overuse leads to fatigue which leads to injuries, and the effects on youth baseball player’s minds when having to sit out for an extended period of time. The data collected by the researcher was done through an online survey that was spread from Twitter, text-messaging, email, and other forms of digital communication so that it got to as many baseball players as possible for the best possible outcome. The results gathered from the researcher look to change the way youth baseball players are taught and looks to save the future careers of the younger generation.

PHYSICAL ACTIVITY AND SPECIAL NEEDS

Goffney, Yukia
Dr. MaryCatherine Harmon

The current study tested the physical, cognitive, emotion, and behavioral aspects of the body in relation to Special Olympics (SO). The current study will provide to one question: Does participation in Special Olympics provide a higher improvement in the physical, cognitive, emotional, and behavioral areas of life for special needs (SN) individuals. The research provides specific information about the mental and physical differences in individuals with SN. The study also provides information from the teachers and administrators that have observed the SN individuals as they have participated in SO. Age, level of intellectual impairment, parental fear/restiction, and lack of information all play a part in the development of SN individual while participating in SO. The research compares the physical, cognitive, emotional, and behavioral improvements among the SN individuals that both did and did not participate in SO. The data collected was provided from monthly conferences conducted for every individual. The data collected was analyzed for qualitative reoccurrence and quantitative reoccurrence.

THE EFFECTS OF SEASON ENDING INJURIES ON ATHLETES

Faletto, Dominick
Dr. MaryCatherine Harmon

The current study explores the relationship between psychological and physiological effects in NCAA athletes that have suffered from a season ending injury. Figuring out specifically what mental and physical challenges are present during this time of injury is the goal. Using a survey, the researcher has gathered data from a sample in Texas, made up of 50 participants who have competed or are competing at any level within NCAA athletics. This survey contained 10 questions, each question aimed at relating participant’s experiences to a possible feeling of depressive symptoms or anxiety. Through an athletes physical and psychological answers of the survey, there has been data collection that gives a better look at what an athlete specifically goes through during the time of a season ending injury. Physical limitations and their effects of the mental aspect of sport, and how mental processes can affect the performance aspect of rehab and ultimately the release time of an athlete. These results can lead to a further studies, specifically using a gender based approach when calculating data for research.

TEACHER SELF-EFFICACY

Grady, Alyssa
Dr. Charlotte Fontenot

This literature review aims to look at research that addresses the impact of teachers’ self-efficacy on the achievement of students with disabilities. It looks at the history of students with disabilities, the inclusion of students with disabilities, and its impact on general education teacher. In addition, the ways professional development influences general educator's teacher self-efficacy, as well as, how accountability components effect teacher’s outcomes. Finally, it raises implications for teacher education and offers suggestions that may benefit teachers.

MENTAL STRESS EFFECTS ON ATHLETES’ PERCEIVED PERFORMANCE

Graham, Johnavhon
Dr. MaryCatherine Harmon

Studies have shown that stress affects an athlete’s perceived performance. Scientists have stated that when an athlete is stressed, the stress response increases general muscle tension in the body which decreases the athlete’s motor coordination and flexibility which can lead to fatigue. The current study is aimed to determine possible effects stress has on an athlete’s perceived performance. The researcher measured athlete’s perceived stress using the Stress Arousal Check List (SACL) survey. The data from the current study will be used to determine the possible effects stress has on athletes. This current study consists of all male college and high school senior’s athletes that are currently on an active athletic team roster. To be included in the current study participants must be eligible to participate in team games and events. There were 20 participants in the study from different ages, races and ethnicities, and sports that competed on the varsity level at a 6A high school, and a division one christen based university in the American south. The current study will present data answering the question: how does stress affect the athlete’s perceived performance, and can stress help the athlete’s perceived performance.

LOCALIZATION OF IMMUNE RESPONSIVE CELLS IN FLORIDIAN AMPHIOXI

Henderson, Tristan
Dr. Agnieszka Czopik

Branchiostoma floridae inhabit shallow waters near the coast of Florida in the US. They are small (~2.5cm) fish-like animals with transparent bodies covered by a thick cuticle and spend most of their time passively filter-feeding while buried in sand. Amphioxi (family BranchioSTMATIDAE) are the closest living relatives of the vertebrates and provide a simple model to gain insights into the development and emergence of features that are distinctly vertebrate. One such feature is the adaptive immune system which first appeared in the jawless fish. We are focused on studying the location and features of the immune system in the Floridian amphioxus. Our group has developed a model of immune activation in B. floridae and we are using it to elucidate the immune-specific gene activation patterns in distinct body regions using a qPCR approach. Concurrently, we observed phagocytic activity in the mid-section of the amphioxus gut using fluorescent particles uptake assay. The coadaptation of the gut microbiota and immune system has been postulated to contribute to the emergence of the adaptive immune system. To further this postulate, our observations together with qPCR data provide evidence for the localization of phagocytic and antimicrobial activity to the mid gut portion of the amphioxus.

SHOULD COLLEGIATE STUDENT-ATHLETES GET PAID?

Horton, Aeriel
Dr. MaryCatherine Harmon

The research study investigates the reasonings behind why or why not collegiate-athletes should be compensated to participate in sports through the National Collegiate Athletic Association (NCAA). As of 2019, it is an NCAA violation to pay athletes to compete in sports at the collegiate level. The researcher will administer an online questionnaire survey to random individuals that consists of questions pertaining background questions as well as questions as it relates to college athletics. The study reports data answering the questions: Do collegiate athletes have available time to get a real job outside of the time consumed with their sport? Should student-athletes get paid based upon the NCAA competition level? Should compensating the athlete weigh on the amount of money already received from the athletic department? Does the athlete strive to work harder if there was a money incentive or does the athlete preform at the same level? Would money distract the athletes from their passion? The results concluded from this survey will aid in determining whether athletes should or should not be rewarded obtainable payments of money for playing a sport within a collegiate institution.

WHAT DOES YOUR POSITION SAY ABOUT YOU?

Jaquez, Heidi
Dr. MaryCatherine Harmon

The current study investigates maximum aerobic capacity (Vo2 max) of college division one softball
players. The current study aims to determine and compare if an individual’s position in college softball has an effect of one’s Vo2 max. The researcher used a YMCA submaximal cycle ergometer test to gather data at a small southern university. There were a total of 17 female division one softball players who participated in the current study, ranging from different ages and weights. This range includes ages from 18-22 years old, as well as a range in weight that fluctuates from 135-210 pounds. The current study reports data that answers the following question: Can a collegiate softball players Vo2 max be effected by the position an individual plays on the field? The results of the current study will report if there is a difference between each positions Vo2 max, which depends on the physical endurance, energy requirements, skill, and strength each positions requires. These results can lead to further studies such as: if one can improve an individual’s Vo2 max by specific conditioning program, or by creating specific workouts for each position. Further study should be conducted for a larger population of women’s collegiate softball players to ensure the validity of the findings.

THE EFFECT OF TURMERIC IN ALLEVIATING PARKINSON’S-LIKE SYMPTOMS IN DROSOPHILA MELANOGASTER INDUCED BY IRON-ENRICHED DIETS

Johnson, Amanda  
Dr. Lisa Ellis

Iron accumulation in the brain is a common finding in various neurological conditions, including neurodegenerative diseases like Parkinson’s. While Parkinson’s disease in humans is often characterized by trembling, bradykinesia, and rigidity, it presents as a loss of negative geotactic ability and shortened lifespan in Drosophila melanogaster fruit flies. In this study, I tested the effects of increased dietary iron on the motor function and survival of D. melanogaster fruit flies. Additionally, this study investigates whether supplementary turmeric, containing curcumin (a well-known iron chelator), has the ability to rescue normal motor function and increase survival rates when added to the diet of flies displaying parkinsonian symptoms. I found that flies fed a standard diet with an iron concentration of 1.3 g/L or greater showed significant decline in negative geotactic ability as well as decreased lifespan. I also found that turmeric is effective in restoring motor function and increasing lifespan in parkinsonian flies. These results suggest that increased iron levels in D. melanogaster causes Parkinson’s-like symptoms. Furthermore, they suggest that turmeric is a viable treatment for reducing Parkinson’s-like symptoms in these flies.

EXTERNAL FORCE ON PHYSICAL ACTIVITY AND BEHAVIOR

Jordan, Tyquan  
Dr. MaryCatherine Harmon

Studies have shown that 60 percent of American adult population are not physically active on a consistent basis. Research has revealed that people who start a physical exercise program, 50 percent drop out during the first 6 months. The purpose of the current study was to see if promoting fitness encouragement would lead to an increase of physical activity and behavior in multiple individuals. This study used a survey questionnaire and was administered to 12 students at a university in the Houston area. The researcher split the 12 students into two halves, the experimental group and the controlled group. The experimental group were 6 students that had fitness encouragement from the researcher either by a phone call or talking them in person briefly 1 time a week for a two-week period. The controlled group was the group that had no fitness encouragement by the researcher throughout the two-week period. After the two weeks were up the researcher compared the experimental group to the controlled group to see whether there was a significant increase in physical activity and behavior in the experimental group than the controlled group.

UNDERSTANDING THE MILLENNIALS: WHAT THE GENERATION Y WANTS IN THE WORKPLACE

Kriletic, Ana  
Dr. Renata Nero

As millennials have slowly been replacing previous generations in the workforce, they have brought new values and set new expectations for the employers. If their expectations were not met, millennials were not hesitant to change jobs, which left companies with a loss of employee investment. Consequently, employers have been eager to find a universal solution for meeting the millennial expectations. In order to predict the work values of millennials that were about to enter the workforce, the current study recruited 108 millennial college students from psychology classes at Houston Baptist University for the investigation. The participants took a survey examining what their preferred work values were as well as whether there would be a significant difference among different genders and GPAs. The questionnaire consisted of the demographic questions that were followed by the 25-item Lyons Work Values Survey (LWVS). It was expected that the extrinsic/instrumental values would be ranked higher than intrinsic/cognitive, altruistic/social, and prestige/status values. The results from this study can be directly implemented by the employers in
order to meet the millennial expectations and keep them in a job.

**SOCIAL MEDIA AND COLLEGE STUDENTS’ SELF PERCEPTION**

Lai, John  
Dr. MaryCatherine Harmon

The current study analyzed self-esteem regarding college students and social media. The research provided specific information regarding social media addiction, the Rosenberg Self-Esteem Scale, and how social media affects college students' self-perception. The current study also provided specific information about college students' age, ethnicity, gender, and time spent on the Internet. Self-esteem was measured through a 10-item scale that measures both positive and negative feelings about one's self. The relationship between self-esteem and social media addiction were also found to play an important role in developing self-worth. The data was collected through the distribution of a questionnaire to college students from a small private university. The questionnaire used a Likert scale format ranging from strongly agree to strongly disagree. The results reported information about the college students' social media including the number of followers/friends.

**PERCEPTIONS OF SECONDARY TRANSITION PROCESS FOR STUDENTS WITH DISABILITIES**

Logan, Marjorie  
Dr. Charlotte Fontenot

My poster is about doing research on Secondary Transition Planning and parents perception of the process. The information that will be included on the poster will be in the following categories: The Purpose of the Study, Influence of Parents Perception on the Process, Parents Involvement in Secondary Transition Planning, Theories of Parental Involvement, Facts About Transition, and Studies of Educator’s viewpoint of Parental Involvement in the Transition Process.

Within the categories listed above, viewers will read about the legality, history, and requirements of the Transition Process according to IDEA (Individuals with Disabilities Education Act). It will also include information about the stipulations and importance of parental involvement. The current studies about Secondary Transition planning process and parent involvement will be summarized to make connections between the law requirements of IDEA as well as the impact of Parental Involvement theories on this issue. Lastly, the poster presentation will include a section for the viewers to leave comments.

**GENDER INEQUALITY**

Ragasa, Eryl  
Dr. MaryCatherine Harmon

Double standards and gender inequality within society has been more prominent as time has gone by (Abraham & Botelho, 2017). The current study was aimed to determine if there was some type of gender inequality between society and the professional world. The factors in the study included the participant's gender, race/ethnicity, and the amount of years the individual has been employed. The researcher used an online anonymous survey to gather data at a small, private university in Houston, TX. There were 31 participants in the study varying from different ages, gender, race, and ethnicity. The results concluded that men and women are given the same treatment within a professional setting but not in society itself. The results from the current study stated on how these individuals felt like they were being discriminated, but the results from the survey stated how the individuals are not excluded from their gender. Even though gender inequality may be prominent in certain parts of society, this current study explained how the participants believe there is not a gender inequality within their workforce. These results will add on to the existing body of research to either prove or disprove the findings. Continuing study will be conducted towards a larger population of individuals with different age groups to ensure the validity of the findings.

**CARDIAC DEVICE IMPLEMENTATION AND INFECTION**

Rehmatullah, Naushad  
Dr. MaryCatherine Harmon

The current study conducted in this paper analyzed the relationship between cardiac device implementation, specifically pacemakers, and the BMI of the patients before implant and after implant. Using the descriptive correlational research design, the researcher reviewed data collected under supervision from the online medical database that is used by the physician and the office staff used to track the patient’s charts, what device was implanted, infections presented or not, and their height and weight. The reports show that 2 out of the 84 total patients in the last 5 years contracted an infection and were treated accordingly. The entire study that was conducted by the researcher, as the obesity epidemic increases, the number of cardiovascular diseases increase, leading to an increase in the demand for cardiac devices. The current study conducted is in the form of a correlational study and reports data that answers the following question: if a
pacemaker is implanted in the patient, does the patient’s body mass index decrease in 90 days? The reason for this study is because body mass index is high in diabetic patients that are unable to complete the recommended physical therapy.

MELTING CURVE ANALYSIS OF STRUCTURAL CHANGES IN DIRUTHENIUM COMPLEX

Royall, Rebecca
Dr. Robert Towery

The use of Cisplatin is limited by cytotoxicity of non-cancer cells and drug resistance, therefore developing other metal-based, therapeutic compounds would be of great significance in the field of cancer treatment. Diruthenium complexes show promising antitumor activity by their proposed ability to disrupt the genetic machinery of the cell. The goal of this research project is to use DNA melting curve analysis to determine if binding is present between a diruthenium complex and salmon sperm DNA. This is evident by observing the original melting curve of salmon sperm DNA while comparing a DNA melting curve of salmon sperm DNA after the addition of a diruthenium complex. UV spectroscopy was used to observe double stranded salmon sperm DNA denaturation at varying temperatures. This project improved on previous issues by adding 1) a micro-flea stirring bar for the UV/Vis cuvette 2) mineral oil on top of the analyte solution to prevent evaporation and bubble formation and 3) temperature control software used in a constant ramping configuration to provide continuous monitoring of absorbance. Data indicated over a period, the diruthenium complex may have transitioned into a monoruthenium, resulting in a change in the melting curve and melting temperature of the salmon sperm DNA.

EFFECTS OF SLEEP ON PERCEIVED LEVELS OF STRESS AMONG COLLEGE STUDENT

Sparks, Makenna
Dr. MaryCatherine Harmon

Stress levels in college students are continuously rising. These high stress levels could be attributed to many different factors and changing circumstances within college students’ lives. The demands of college students have changed, leaving little time for sleep. Additionally, the continuous and frequent use of technology also had effects on sleep and sleep quality, by causing sleep disturbances. The current study focused on determining if sleep affected college student’s perceived levels of stress. The study also aimed to see if technology was a contributing factor in the amount of sleep a student was receiving. The researcher used an online survey to collect data from college students in the state of Texas. The survey helped the researcher to determine perceived stress levels, sleep quantity and quality, and technology usage. This study included 24 participants from different ages, over 18, races and ethnicities, genders, and colleges in the state of Texas. This research will be used to add to previous research done, and to either prove or disprove previous research.

CAFFEINE AND PRE-WORKOUT SUPPLEMENTS

Tapia, Francisco
Dr. MaryCatherine Harmon

The ingestion of Pre-workout supplements has increased in individuals who participate in various forms of exercise. The post consumption benefits of these supplements are posed to be mood elevation and increased endurance training capacity. Caffeine is used in high amounts as a primary stimulant to provide such synergetic effect. A study was conducted to compare the post ingestion effects of two pre-work out supplements. The study measured one-repetition maximum performance in bench press, squat and deadlift. Two measurements were recorded for 12 subjects that were placed in three test groups. All subjects performed exercise without consuming supplements and were given a week to recover. The aim of recovery was to reduce factors of fatigue and soreness interference with performance. The first test group of subjects consumed caffeine containing supplements. The second test group consumed Caffeine free supplements and the third group was given a similar tasting sugar drink. Results were compared to subject’s initial performance. The following study aims to provide new information regarding the level of influence caffeine plays in increases in performance and present the forms of aids found as supplements in caffeine free PWS.

INTERMITTENT FASTINGS EFFECTS ON BODY COMPOSITION

Tapia, Marco
Dr. MaryMarco Harmon

Intermittent Fasting (IF) is a type of Time Restricted Feeding (TRF) that has gained popularity within the fitness and scientific community. Researchers have found this type of diet has impacts on the overall body composition of individuals who follow some form of IF. When following IF in previous studies there has been a decrease in fat and increase in muscle mass. This study will focus on observing the strength and body composition of participants, ages 20 to 29 years old, over a span of five weeks. The participants of this study will be required to fast for a
14 hour period, and to consume all their daily caloric intake in a 10 hour window. Participants will track these time periods by utilizing a mobile app. A 5 x 5 workout program will also be provided during the five week period to calculate strength before and after utilizing the Epley formula. The focus of the current study is to investigate the impact that IF has on the overall body composition.

DETERMINTION OF LYSOZYME SOLUBILITY AS A FUNCTION OF pH

Thomas, Joshulyn; Do, Quynh
Dr. Saul Trevino

Determination of protein solubility is essential to develop protein-based pharmaceuticals. Pharmaceuticals must possess an appropriate concentration for effectiveness in the body, but also remain dissolved in biological conditions. Experiments with lysozyme were conducted to measure its solubility as a function of pH. Lysozyme is not a pharmaceutical agent; however, the protocol established in this project may be applied to future protein characterization. The protein was dissolved in a buffer consisting of glycine, phosphate, citrate, TAPS, and TES (GPCTT) and precipitated with polyethylene glycol (PEG). PEG precipitates lysozyme through molecular crowding, and the precipitate was quantitatively measured using UV-Vis spectrophotometry.

Results suggest that GPCTT is an adequate buffer to measure lysozyme solubility at different pH levels. The optimal range for the solubility measurements using the GPCTT was determined to be between 6 through 10. Hopefully, this understanding of solubility of proteins will help in the development of protein pharmaceuticals.

COLLEGE STUDENTS KNOWLEDGE AND PERCEPTIONS OF HPV AND HPV VACCINATIONS

Thompson, Jada
Dr. Renata Nero

Young adults, specifically college aged students, are not educated enough about the risk, dangers, and health disparities the human papillomavirus (HPV) can cause. Despite the availability of the HPV vaccine, many college students have not been or are not interested in being vaccinated. Due to the lack of knowledge about HPV, the risk of contracting other sexually transmitted infections (STIs) and/or being diagnosed with cancer become higher for both males and females. This research will examine the correlation between college students knowledge and perceptions of HPV based on their sex, scores from the questionnaire, grade point average, and major. The “Knowledge” and “Feelings towards Vaccinations” sections of the HPV Adolescents Vaccination Intervention Questionnaire will be used to assess 100 college student’s knowledge and perceptions of HPV.

SLEEP DEPRIVATION IN COLLEGE ATHLETES

Vincent, Greg
Dr. MaryCatherine Harmon

Sleep deprivation is a situation or condition of suffering from lack of sleep. Research conducted over sleep deprivation in previous studies showed impacts on participants in areas such as cognitive processes and metabolic recovery. The researcher conducted a study that found how sleep deprivation in college athletes has a significant impact on their perceived psychological well-being and physiological well-being. The research analyzed a convenient sample of college athletes at a small private university in southeast Texas. The research consisted of a survey that the college athletes were required to complete in full. The data collection of the study conveyed the results over the sleep quality, the perceived psychological well-being, and the perceived physiological well-being of the college athletes. The research showed that the worst sleep quality the college athlete experienced the week prior to testing, the more their perceived psychological and perceived physiological well-being were negatively affected.

SHOULD DIVISION 1 COLLEGE ATHLETES GET PAID

Voller, Erik
Dr. MaryCatherine Harmon

The current research study investigates if division 1 college athletes should be getting paid. Using analysis of the data collected, the researcher tests whether or not college athletes should be getting paid. The data is collected through surveys sent online through social media to people around the school in Southeast Texas. This current study was found during the season of a division 1 baseball team in the Southland Conference. Research finds that 15 percent of students would not go to school if it was not for their sport. Also, factors that will run this research include, NCAA rules and regulations, gender, and Division 1 college athletes. The current study reports data answering the questions: should college athletes get paid for playing? Do student athletes worry about money while in school? Are student athletes going to be getting paid in the near future?
future? Do college athletes wish they were compensated for time of practice and play?

INCLUSION

Watson, Phynesia  
Dr. Christine Woodbury

Special education is moving to the next level drastically by undertaking the journey to create a roadmap that grants every child access to a free appropriate public education (FAPE) in the least restrictive environment (LRE) (Mastropieri, & Scruggs, 2014). This means general education teachers will teach more special education students in their classrooms. In the world of education, we call this “inclusion”. As required by law, every child has the right to be educated regardless of the type of disability one may have or the level of severity of their disability. Thus, there is a need to address a lack of teacher preparation to accommodate the needs of special education students in the inclusive classroom.

The purpose of this study aims to examine the perceptions of elementary general education teachers to effectively implement instructional strategies that will meet the academic and social needs of special education students in an inclusive classroom. In addition, this study will seek recommendations from administrators of public, private and charter schools to aid in the instructional support and development of their general education teachers.

ORAL PRESENTATIONS

United States government the authority to confiscate property in exchange for just compensation. Confiscated property must be taken for “public use” only. In Kelo v. New London, the United States Supreme Court upheld the taking of a private citizen’s property for economic redevelopment purposes. Ms. Kelo, the plaintiff, claimed that the taking did not meet the “public use” requirement, but the United States Supreme Court disagreed. John Locke and Thomas Hobbes wrote extensively on property rights. If Hobbes were to evaluate the Eminent Domain Clause, he would agree that the government has the authority to control property rights. According to Hobbes, the ruling party is the ultimate authority. It has the final say in all matters. Locke, on the other hand, would disagree with the Eminent Domain Clause. According to Locke, a government’s rights are limited to the rights given to it by the people. If the people do not have the right to take another person’s property, then the people cannot give that right to the government.

ON THE PLAUSIBILITY OF THE PAPACY: SCALING THE WALLS OF CONTEMPORARY CRITICISMS

Blado, Joseph  
Dr. Tyler Dalton McNabb

Recently, there has been a resurgence of scholarly criticisms regarding the plausibility of the Roman Catholic doctrine of the Papacy. Broadly speaking, these problems include scholarly criticisms of the scriptural passages which Roman Catholic theologians claim to support the papacy, historical discrepancies regarding apostolic succession from the Apostle Peter, and a priori intuitions about the moral nature of those who attain Papal Status. In
this paper, I respond to these objections by utilizing Swinburne’s Bayesian C-inductive strategy – found in his text, "The Existence of God" – and conclude that overall, there is a strong P-Inductive argument for the Papacy.

MY WHY: THE EBB AND FLOW OF A MIDDLE SCHOOL CAMPUS

Braddick, Nikki Thompson
Dr. John Spoede

As a teacher of 20 years at the same Southwest Texas middle school I have seen an ebb and flow of leadership styles and campus culture. In 2000 the campus had a reputation with the district as the last-ditch placement for students, teachers, and administrators. After I accepted a position as a special education teacher, I noticed the winces I would receive when stating the name of the school. The campus culture was the same with no one in the hallways, no mentors for new teachers, and no administration present. There was chaos everywhere. Fortunately, over the course of several years, there were incremental changes in the leadership and culture of the school. Fewer turnovers in employees, student achievement increased, and teachers began showing up to work. The culture began to shift in a positive way.

Unfortunately, leadership has changed yet again. The culture of the campus is beginning to shift back to chaos. Teacher absences have begun to increase. Behaviors in both the classroom and hallways are out of control. Referrals have more than tripled in the last two years. The administration is behind closed doors again, and if asked, students do not know the name of the principal.

WHEN IS A TREE JUST A TREE? (PUTNAM EXPOSED)

Bryant, Richard
Dr. Bruce Gordon

In Reason, Truth, and History, Hilary Putnam argues against External Realism. This thesis is committed to three credos: The Independence Principle, the Correspondence Principle, and the Cartesian Principle. The Independence Principle states that the world is (largely) mind, language, and theory independent. The Correspondence Principle is the commitment that truth involves some correspondence relation between words and external objects. Finally, the Cartesian Principle is the (meta) belief that even an ideal theory could be radically false. External Realism is appealing because it is often seen as a philosophically neutral starting place for further inquiry. However, Putnam argues that External Realism is internally incoherent through his Model-Theoretic Argument (MTA), the Just-More-Theory Manoeuvre, and the Brain in a Vat (BIV) argument. In this talk, I will be responding to both his Permutation and Löwenheim-Skolem MTAs by demonstrating that we can fix reference in the former case while the required premises cannot be established in the latter case. Importantly, I contrast External Realism with ‘Ontologese’. Finally, I introduce the Matryoshka-BIV argument which undermines Putnam’s BIV argument.

SOME EXAMPLES OF TOPOLOGICAL SYMMETRY GROUPS OF COMPLETE GRAPHS

Bushman, Brooke
Dr. Paul Lewis

Topological symmetry groups were introduced by Jon Simon in 1987 in order to analyze the symmetries of non-rigid molecules. Topological symmetry groups are now used to study the symmetries of any graph embedded in R^3. We give definitions for complete graphs, automorphisms of groups, isomorphisms, realizable groups, and chiral and achiral knots. We discuss topological symmetry groups of complete graphs that have no more than six vertices and determine whether a topological symmetry group is realizable for certain complete graphs. We also look at the effects of adding chiral and achiral knots to complete graphs. Our discussion relies heavily on the work of Erica Flapan and Dwayne Chambers.

ONLINE COMMENTS AND FREE SPEECH: THE IMPLICATIONS OF COMMENTING SYSTEMS AND CRITICAL THOUGHT ON FREE SPEECH

Corrallo, Kalon
Dr. Scott Robinson

The purpose of this paper is to determine if news site comment systems promote critical thought. Theoretically, if a comment gains 'likes', '+1's, or 'upvotes', end-users will associate the comment's style and content with success or popularity (vicarious reinforcement). If more critically thoughtful comments are prioritized, then more end-users will be encouraged to produce critical thought. The efficacy of comment systems was determined by analyzing 50 top comments and 150 random comments from five different news site posts (NYT, WSJ, Slate, YouTube, and Reddit). The framework used to identify and define ‘critical thought’ is based off of a revision of Bloom’s Taxonomy of Educational Objectives. Academic consensus holds that the upper three levels of the taxonomy can be considered ‘critical’ thinking. The data shows a
correlation between critically thoughtful comments being prioritized and a greater amount of moderation in a commenting system. In broader application, this means that free speech is best utilized in combination with moderation.

REFORMING RESIDENT ALIENS: WHY BEING “IN THE WORLD” STILL MEANS ENGAGING POLITICAL INSTITUTIONS

Hadsell, Nick
Dr. Jeremy Neill

Stanley Hauerwas thinks that American Christians have traded in their allegiance to the Church in exchange for an allegiance to the state that waters down the radical demands of what it means to be a Christian in the name of secular ‘tolerance.’ Thus, Hauerwas calls Christians back from their engagement with the political institutions of the state and urges them to join the most powerful kind of political community: The Church. Now Hauerwas’ observation of disoriented allegiances among American Christians is correct, but his alternative of calling Christians away from political institutions runs counter to the Church’s mission of realizing justice in the world. As opposed to the Hauerwasian alternative, then, I endorse Nicholas Wolterstorff’s strand of Reformed political theology, in which the mission of the Church is to engage the state’s political institutions with the goal of realizing a Biblical conception of justice that fights for the poor, oppressed, etc. If the Church is anything less than this mission, then we should question whether or not we are still talking about the Church.

APPLICATION OF THE SHANNON ENTROPIC ENTANGLEMENT CRITERION TO THE SIMPLE HARMONIC OSCILLATOR

Johnson, Amanda; Herrera, Francisco
Dr. Gardo Blado

We study entanglement in the simple harmonic oscillator, a system typically discussed in undergraduate quantum mechanics courses. Notably, factorizability and the Schmidt decomposition are the most well-recognized entanglement criteria. In our work, we take an alternate approach investigating the more recently developed Shannon entropic entanglement criterion.

NASH EQUILIBRIUM AND IT’S REFINEMENTS

Johnson, Bria
Dr. Paul Lewis

Nobel Prize winner John Nash discovered the idea of Nash equilibrium, an important concept in game theory. We discuss the concept of Nash equilibrium and give an overview of the proof of its existence for any n-person game. We will see that there can be many Nash equilibria in a game, and some of these equilibria result in counterintuitive outcomes. We highlight select attempts made to improve the Nash equilibrium.

GEORGE HERBERT: THE ARCHITECTURE OF THE HEART

Kleinhenz, Emily
Dr. Emily Stelzer

Scholars agree George Herbert uses the externals of worship to mirror and meditate on the internal heart, but few delve into how he does so while aligning himself with the teachings of the Anglican Church. I will demonstrate how Herbert draws from Anglican teachings to express the correspondence between the external church and the internal heart, using the Elizabethan Homilies, the 1559 Book of Common Prayer, and the Thirty-nine Articles, the observations of Herbert and his contemporaries, and subsequent scholarship. Focusing on Holy Communion, baptism, prayer, and the sermon, this essay explains how Herbert uses elements of worship to emphasize how a proper father-son relationship with God is necessary to shape the architecture of the heart.

George Herbert orders The Temple to consider the purpose of the sacraments and the structure of the church service, which in turn shape the architecture of the individual’s heart. When the spiritual architecture of hearts is in order, order and peace can then be cultivated in families, communities, and government—an imperfect but meaningful reflection of the order and beauty of the kingdom of God.

ROMAN SUICIDE OF THE FIRST CENTURIES: EXAMPLES AND TEMPLATES OF DEATH

McCoy, Helen
Dr. Doni Wilson

First century Rome, famous for suicide, had as complex a conversation about the method, motivation, and morality behind self-killing as our modern culture. The ancient culture did not have a single word for suicide as English does, which only further clouded this ambiguous subject. Much of their conversation, as it survives, took place in myths and moralizing histories. The stories of Lucretia, Cato the Younger, and others were told and retold to
discuss suicide in the context of politics, philosophy, gender, and other ambiguous topics. With the influence of Cato, the patterns set by Stoic philosophers also became key in the shaping of the Roman perceptions of suicide. History reveals that these conclusions and examples served to normalize and actually justify certain forms of self-killing. Between the Roman and modern American discussion of suicide there are parallels, not the least of which is the connection between our stories and our actions.

VIRTUAL KNOTS AND THE JONES POLYNOMIAL

Robbins, Stephen  
Dr. Paul Lewis

In knot theory, an open question is whether or not there exists a non-trivial classical knot with unit Jones polynomial. Using the work of Kauffman, we look at this same question with virtual knots and uncover a method to create non-trivial virtual knots with unit Jones polynomial. Finally, we derive a way to take any classical knot and make it a non-trivial virtual knot with unit Jones Polynomial. Further research into these methods may help us discover stronger invariants of virtual knots.

HISTORY OF AMERICAN SOCIALISM: COMMUNITIES, MOVEMENTS, AND PARTIES

Verbeck, Paulette  
Dr. Daniel Davis

Socialism is a widely used term to define a variety of economic and social ideals. In modern American politics, socialist ideals have grown in popularity over the past few years, and has become an influential framework for several US politicians. In order to understand what exactly is socialism, previous versions of socialism within the United States history is needed for reference to show what socialism has been from the early seventeenth century to the present day. The purpose of this paper is to examine what makes up socialism in the United States, including its origins and the wide range of beliefs that have been identified with socialism, either by themselves, their contemporaries, or in the scholarly literature. Ultimately, by examining the different versions of socialism within the history of the United States, this paper will address the question whether or not the term “socialism” is too broad for all of the communities, movements, and parties that have historically been included under this term.

FUNDAMENTAL GROUPS AND KNOT THEORY

Wilson, Richard  
Dr. Paul Lewis

The concept of the fundamental group was first defined by Henri Poincaré in the year 1895. We define the fundamental group, and detail specific examples as well as potential uses for the fundamental group. Additionally, we discuss the knot group, an important application of the fundamental group in knot theory.

DEFENDING THE CASTLE: LESSONS IN RESILIENCE FROM THE GREEK ENCLAVE IN TURKISH CONTROLLED CYPRUS

Zachariou, Christos  
Dr. Sara Frear

In 1974, the Republic of Cyprus, independent since 1960, underwent a military coup. This provided Turkey, one of the guarantors of Cypriot stability under the 1960 constitution, with a pretext to invade. In the confusion caused by the sudden incursion, pockets of Greek Cypriots ended up isolated in the northern, Turkish-dominated part of Cyprus, cut off from the Greek Republic of Cyprus in the south. The Third Vienna Agreement of 1975 provided these Greeks with the opportunity to relocate to Greek Cyprus if they chose. A minority chose to stay put, to the dismay of the occupying Turkish army, and their communities became known as the Greek “enclaved.” Despite the provisions of the Vienna Agreement, these enclaved were deprived of basic human rights and experienced extreme hardship on a daily basis. The anomalous position of the enclaved, who have no clear-cut citizenship status, made them vulnerable to Turkish pressure to dissolve. Their intense loyalty to their land and communities, however, enabled the enclaved to “defend the castle” of Greek identity in Turkish-majority Cyprus.