SAS2019
Student Abstracts

Thursday April 11- Music, Education, Fine Arts

4:00-5:00 Student Conductors (Jackson Auditorium) *no abstracts*
5:00-6:00 Student Teacher Posters (Tschoepe Lobby) *no abstracts*
5:00-7:00 Visual Art senior exhibit (Schuech Fine Arts) *no abstracts*

Friday April 12 – morning oral sessions

8:00 Business Strategy (Dunne)
9:00 Sociology/Geography (TH103)
Workshop: Rape Culture (Krost 209)
9:30 Business "Promotion for Teatro de Artes" (Dunne)
9:30 Psychology (LH 120)
10:00 Chapel: Gabriella Conklin
10:30 Business "Revenue Recognition" (Dunne)
10:50: "Data Alliances" (Dunne)
10:30 Math/Computer Science/Information Systems (TH 103)
10:30 Nursing(MS 101)
10:30 History (Valero Room)
Philosophy (LH 120)
11:10 Dunne Bulldog Investment Company
11:30 Dunne Data Mining

Friday April 12 – NOON – Poster Sessions and all school picnic – Jackson Student Center

SAS2019
Student Abstracts

Friday April 12 – Afternoon oral sessions

1:00 Physics (TH 103) –
Holden Village: Faith, Service, and Social Change (Valero Room)
1:30 Kinesiology (Dunne)
Biology (MS 101)
2:30 Chemistry(Krost 209)
Dramatic Media (Studio Theatre)
4:00 Class Ring Ceremony-Jackson Auditorium
7:30 XpressFest19 Short Plays (The CAST Theatre on Court Street)

SAS2019
Student Abstracts

Oral Presentation Abstracts

SAS2019
Student Abstracts

Department: Accounting
Title: Revenue Recognition: Construction Contracts
First Author: Connor James
Other Presenters: Riley Schaefer
Collaborators: Riley Schaefer, Travis Koenig

Abstract

Recently a new standard concerning revenue recognition was released by FASB that effects the way companies are determining what to include on their income statement. One of the industries that is effected by these changes is construction/contractors. In our presentation, we will highlight the changes from the old standard to the new and include examples of how revenue should be calculated under the new standard. We will also discuss the accounting theory behind why the changes were made and the history behind the acceptance of the new standard.

SAS2019
Student Abstracts

Department: Biology
Title: Mechanisms of Camouflage in Cephalopods
First Author: Amber Lancaster
Other Presenters:
Collaborators:

Abstract

Cephalopod camouflage has piqued scientists' interest for a number of years, because while they are not the only organisms capable of performing this behavior, the complexity and speed of which they adapt their skin color, pattern, and even topography is unlike any other organism. The chromatophores or pigment producing structures, and iridophores or reflective/iridescence producing structures in cephalopod skin are what allow them to produce patterns and colors with different levels of reflectiveness; combined with visual input cues, neuromotor control, and body movements, they are able to camouflage into a wide variety of complex and cluttered surroundings with a high degree of accuracy.

SAS2019
Student Abstracts

Department: Biology
Title: How Sugar Affects Cognition and the Human Brain
First Author: Sydney A Sierra
Other Presenters:
Collaborators: n/a

Abstract

Sugar is a general term for glucose, or C6H12O6. It is involved in many life processes, such as cellular respiration or photosynthesis in plants. However, glucose is not the only type of sugar that affects the body. Sugar in food affects the body in negative ways, leading to weight gain, diabetes, and cognitive difficulties. Studies have shown a correlation of decreasing cognitive function with higher amounts of sugar intake. Diabetes also has an impact on how our brains function. People with diabetes are more likely to develop emotional issues, mental disorders, or changes in emotions or memory. Sugar intake can lead to obesity as well, which has negative impacts all over the body and on overall health.

SAS2019
Student Abstracts

Department: Biology
Title: The Effect of Prenatal Maternal Stress Exposure on Fetal Development and its Postnatal Consequences
First Author: Zach Pepin
Other Presenters:
Collaborators:

Abstract

Stress response is a vital evolutionary mechanism for survival, but chronic stress can severely affect not only the person enduring the stress, but also a developing fetus as well. The effect of stress on a developing fetus can range from acute to lifelong, and from the physiological to psychological. Biochemical mediators of stress are numerous, but the group of compounds responsible for most of the prenatal effects are called glucocorticoids. Glucocorticoids are essential for normal fetal organ development, especially the lungs (Chida et al., 2011). Excess glucocorticoid exposure caused by maternal stress can have deleterious effects on the developing fetus. Maternal stress during fetal development can cause acute effects such as increased heart-rate to long term effects like fetal growth retardation (McDonald et al., 2003). Understanding the role of prenatal maternal stress as a potential cause of many pathologies will be vital to reducing the incidence of disease of future generations.

SAS2019
Student Abstracts

Department: Business
Title: Advertising Campaign for Local Non-Profit
First Author: Destiny Psencik
Other Presenters: Destiny Psencik, Kelsey Hamrick
Collaborators: Destiny Psencik, Kelsey Hamrick, Mikayla Wallace

Abstract

Our presentation consists of the marketing campaign developed in Dr. Briney's Advertising class in the Spring of 2018. Faced with the task of competing against other student groups in creating advertising and marketing techniques for Teatro De Artes de Juan Seguin (a local non-profit), we provided the best outcome in the class. Asked to present our method to success, we will show you our suggestions to enhance the website structure, social media presence, and advertising campaigns, in order to increase the non-profit's exposure in our community.

SAS2019
Student Abstracts

Department: Chemistry
Title: The Medicinal Chemistry of Antihistamines
First Author: Kaylyn Stork
Other Presenters:
Collaborators:

Abstract

Histamines are naturally occurring compounds used by the human immune system to fight off adverse reactions to allergens. Although this response can be very useful, histamines can cause an overreaction in the body that can produce unwanted symptoms. To help control this problem, antihistamines are a class of drugs that were derived to act as an inverse agonist to histamine. Histamine binds to four known histamine receptors: H1-receptor, H2-receptor, H3-receptor and H4-receptor. The most commonly studied antihistamines bind to the histamine H1-receptor and are called H1-antihistamines. The first generation of H1-antihistamines includes the drug Benadryl, which has proved to be an effective drug for battling allergic reactions, however, it may cause drowsiness along with other adverse reactions. Because of these undesirable effects, second generation H1-antihistamines like Claritin and Zyrtec were produced and were found to be non-drowsy. Recently discovered derivatives of these second generation H1-antihistamines, Allegra and Xyzal, are known as third generation antihistamines and produce similar results. H2-antihistamines, which target the histamine H2-receptor, have also been developed for clinical use; however, future exploration is being done on potential H3 and H4-antihistamines. Also, additional studies are being conducted comparing oral antihistamines to intranasal corticosteroids and which is more effective in treating targeted allergy symptoms.

SAS2019
Student Abstracts

Department: Communications
Title: Rape Culture Workshop
First Author: Leslie Flores
Other Presenters: Amaris Diaz, Christopher Bollinger
Collaborators: Amaris Diaz, Christopher Bollinger

Abstract

Rape culture describes a culture in which sexual and other gender based violence are common, and the prevalent attitudes, norms, practices of culture normalize, condone, excuse, encourage, or ignore rape & other forms of gender based violence. The interactive educational workshop we created strives to bring light to the issues that contribute to such violence and to educate students about the preventative measures to reduce violence on college campuses.

SAS2019
Student Abstracts

Department: Computer Science
Title: TLU Student Degree Auditor
First Author: Jesus Cruz
Other Presenters:
Collaborators:

Abstract

The TLU Degree Auditor is a piece of software that was created JavaScript, HTML and an SQL database. The purpose of the degree auditing system is to allow students to input their major, respective degree plan, and courses taken during their time at TLU. The system then performs an audit of the degree plan and displays the audited degree plan with courses sorted into the correct portion of the degree plan.

SAS2019
Student Abstracts

Department: Computer Science
Title: Texas Lutheran University Schedule Mapper
First Author: Jordyn Martin
Other Presenters:
Collaborators:

Abstract

A TLU Schedule Mapper website that was created to allow users to be provided with the information they need to find their classes from their schedule. The mapper will give a student a point on the map using Google Maps API, along with directions to their classes.

SAS2019
Student Abstracts

Department: CS/IS
Title: The Art of Solving Nonograms Efficiently
First Author: Le Johnson
Other Presenters: N/A
Collaborators: N/A

Abstract

A nonogram is a Japanese logic puzzle in grid format, where the objective of the puzzle is to uncover a hidden picture. In this presentation, a program designed to solve these puzzles will be introduced and demonstrated. This presentation will also include the structure and design of the program, explanation of the techniques used to solve nonograms, and how these techniques are implemented in the program.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: An Actor's Study: Developing the Role of Caroline in I AND YOU
First Author: Annelise Leifeste
Other Presenters:
Collaborators:

Abstract

This project explores the process of finding a character through research, analysis, and rehearsal, and highlights Caroline, from I AND YOU, by Lauren Gunderson. Caroline suffers from a liver disease which keeps her homebound and constantly fearful for her mortality. As an actor, part of the process for Annelise Leifeste included research into the medicines and treatments Caroline would take, the symptoms she would have, and how to incorporate those into performance. Given that the rest of the world sees Caroline as a sick person, this became an essential starting point for the development of the role. In addition to her illness, however, the portrayal of Caroline involved the creation of a dimensional personality: her love of Elvis, dancing, cookies, glitter and photography. A final challenge involved how to make an audience love a girl who seems to hate everything. Ultimately, the story of Caroline emphasizes the importance of connection, vulnerability, and openness to change.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: Supporting Themes Through Design in DEAD MAN'S CELL PHONE
First Author: Ashleigh Bullard
Other Presenters:
Collaborators:

Abstract

DEAD MAN'S CELL PHONE, a modern play by Sarah Ruhl, examines how society tends to communicate with each other in the digital age. It explores themes of isolation, loneliness, and feeling lost—themes that resonate and translate to a wide range of contemporary audiences. In the process, the play challenges us to nurture and develop authentic and intimate human interactions. Ashleigh Bullard, who served as director and scenic designer, translated these themes into her concept and design through mediums and symbols meant to evoke the moods and motifs of Ruhl's text. Combining symbolic elements such as exposed lighting, with the stylized realism and color palette of an Edward Hopper painting, the design attempted to highlight the impact of technology on people and communicate how art has been an effective way for humans to communicate and expose our vulnerability.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: I and You, by Lauren Gunderson: A Director's Process
First Author: Brianna R. Gaetz
Other Presenters:
Collaborators:

Abstract

A director's process includes textual analysis, research, production approach, casting, staging, and collaborative management of the production team. In this presentation, Brianna Gaetz will highlight the process and final product for her direction of the play I AND YOU, by Lauren Gunderson, including the pre-production, production, and promotional materials used in the creation of this piece.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: Fiction Grounded in Fact: A Filmmaker's Study of Communication and Coercion
First Author: Guillermo E. Herrera
Other Presenters:
Collaborators:

Abstract

This presentation will highlight the research, analysis, pre-production and production for a film SNUFF by Guillermo Herrera, in which a young man is blackmailed through the use of technology to record a killing. As the story develops, the audience learns how this conflict affects him and others, and what the characters are willing to do to stop the unknown mastermind. Inspired by real-life cases of digital intimidation, including events where people have committed suicide under pressure via texts messages, SNUFF explores the influence of cyber communication and coercion.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: The Wizard II
First Author: Jimmy McGahan
Other Presenters:
Collaborators:

Abstract

Expanding upon a previous short film, Jimmy McGahan serves as the writer, director, and producer of a television pilot, THE WIZARD II. Blending dark themes and mature subjects with comedy, THE WIZZARD II explores theological and philosophical ideas/conflicts, with two characters pushing the boundaries of reality and common sense as they attempt to bring the dead back to life. In this presentation, McGahan will highlight the process of creating the pilot, from scriptwriting to the final premiere.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: Creating Character in an Original Dramatic Production
First Author: Jonathan J. Tucker
Other Presenters:
Collaborators:

Abstract

The creation of an original dramatic production is often the result of collaboration and compromise. For an actor, the creation of a character in such a process can be a unique opportunity that differs from that of working on an established script. In this presentation, Jonathan J. Tucker will explore his role and process in the premiere of an original stage play by TLU student Mac Pruneda. Originally written as a short film, "Harmonizing" contains a collaborative original song and tells the story of two seemingly ill-fitted roommates who fall in love, exploring themes of love, commitment, independence and sacrifice.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: The Hollows Film Production Process
First Author: Megan Taylor
Other Presenters:
Collaborators:

Abstract

Written, directed, and produced by Megan Taylor, THE HOLLOWS is an original television pilot that poses the questions, “Is reality worth the struggle? If you were given the opportunity to live in a fictional world created for yourself, would you go?” Inspired by Dante’s Divine Comedy, specifically the chapter surrounding the Suicide Forest, THE HOLLOWS examines themes of reality vs dreams, loss, and trust. The story begins with a group of friends who go into the forest, the hollows, in search of their friend Joey. But the forest has more in store then they were prepared to face. This presentation chronicles the challenges and invigoration that comes from producing an ambitious project of this scale— an endeavor normally reserved for professional companies with the requisite resources.

SAS2019
Student Abstracts

Department: Dramatic Media
Title: STUDENT DIRECTED: The Process of Making a Mockumentary Film
First Author: Shelby Bednar
Other Presenters:
Collaborators:

Abstract

This presentation examines the process behind creating a documentary film, but told using the conventions of the mockumentary genre. Based on some (slightly very embellished) prior experiences, the film STUDENT DIRECTED, by Shelby Bednar, follows a cast of theatre students working their way through the chaos that is the theatrical production process. By exploring the highs and lows of working in theatre, this presentation goes through the process of researching and creating a script that might warrant a documentary, and the related practices that lead to the final mockumentary film.

SAS2019
Student Abstracts

Department: History
Title: "I Wish You'd Speak English Like Normal Human Beings": How Teen Slang Symbolized Intergenerational Relationships in the Postwar Period
First Author: Anna Trevino
Other Presenters:
Collaborators:

Abstract

Young people in the period after World War II were designated as a group and described for the first time as "teenagers." Shifting life experiences of young people, such as higher rates of high school attendance, the break-down of traditional family structures during the war, and the increasing commercialization of American life, gave this group a distinct identity. This identity, expressed in behavior and language, caused widespread concern among adults.

This paper will focus on the use of slang and how it affected and symbolized the relationship between parents or other adults, and postwar teenagers. Studies of slang have discussed its various origins and function as a group marker but have not sufficiently focused on the inter-generational impact of age-specific slang.

Using social guidance films, advertising, and contemporary scholarly studies, this paper explores the tension between the adult criticism of the use of slang while exploiting it to market to the teen consumer. The author argues that the disconnect between the generations in the postwar period was symbolized by and was a result of debates about teen slang and teen behavior.

SAS2019
Student Abstracts

Department: History
Title: The Deep Roots of American Environmentalism
First Author: Austin Read
Other Presenters:
Collaborators:

Abstract

This paper will focus on establishing that although modern-day environmentalism is not often assumed to have begun until the 1960s, Progressive Era discussions about the changing relationship between humans and nature were part of the larger conservation, and even environmentalism movement, at the turn of the century. Based largely on the writings of John Muir, I will attempt to demonstrate that Muir's preservationist ideals, as opposed to the conservationists beliefs advocated by men like Gifford Pinchot, was based on an intellectual indebtedness to Ralph Waldo Emerson and was the beginning to what would latter become the environmentalism movement. This paper will also look into how these ideas ran into the politics and management of natural resources, as well as making a clear distinction between the spiritual, rather than religious, ideas of transcendentalism and the conservation and preservation debate of the Progressive Era.

SAS2019
Student Abstracts

Department: History
Title: Black Athletes as Civil Rights Activists
First Author: Jackson
Other Presenters:
Collaborators:

Abstract

When black college football player Jack Trice stepped onto the football field in 1923, he conceived of his action as akin to going into battle, fighting for the honor of his family and his community. Not many of the black athletes that followed in the decades to come were actually killed, as Trice was, in this "battle" but they were generally and painfully aware of the struggle they faced to be accepted as equals by teammates, coaches, owners, and audiences. The history of the civil rights movement and of racial integration in the half-century from the 1920s to the 1970s does not often give prominence to sports over politics. The history of team sports, on the other hand, focuses on "firsts" and prominent athletes, such as Jackie Robinson and Kenny Washington, without fully making the connection to the racial politics of the era. In recent years, there have been studies of individual sports, such as football, both at the college and at the professional level, and studies of individual teams and the dynamics of integration that defined them. This paper tries to draw comparisons among football, baseball and basketball both at the college and professional levels to explore what facilitated or hindered integration and racial equality. Based on different sources by black athletes, coaches and owners, the author argues that the political dynamics were different for each sport, as was the self-perception of athletes as civil rights activists.

SAS2019
Student Abstracts

Department: History
Title: African American Athletes as Civil Rights Activists
First Author: Jackson Hughes
Other Presenters:
Collaborators:

Abstract

When black college football player Jack Trice stepped onto the football field in 1923, he conceived of his action as akin to going into battle, fighting for the honor of his family and his community. Not many of the black athletes that followed in the decades to come were actually killed, as Trice was, in this “battle” but they were generally and painfully aware of the struggle they faced to be accepted as equals by teammates, coaches, owners, and audiences. The history of the civil rights movement and of racial integration in the half-century from the 1920s to the 1970s does not often give prominence to sports over politics. The history of team sports, on the other hand, focuses on “firsts” and prominent athletes, such as Jackie Robinson and Kenny Washington, without fully making the connection to the racial politics of the era. In recent years, there have been studies of individual sports, such as football, both at the college and at the professional level, and studies of individual teams and the dynamics of integration that defined them. This paper tries to draw comparisons among football, baseball and basketball both at the college and professional levels to explore what facilitated or hindered integration and racial equality. Based on different sources by black athletes, coaches and owners, the author argues that the political dynamics were different for each sport, as was the self-perception of athletes as civil rights activists.

SAS2019
Student Abstracts

Department: Mathematics
Title: Sums of Consecutive Pair Products
First Author: Robert Emory Cuzze
Other Presenters:
Collaborators:

Abstract

Pong '08, Proved that he could break down numbers into sums of consecutive integer every integer not a power of 2. Here we look at a similar idea but instead we look at the product of consecutive numbers. Our Main result being that ∑_(i=1)^n 〖(i(i+1)(i+2)…(i+k))=(n(n+1)(n+2)…(n+k+1))/(k+2)〗 Where n ∈ Z

SAS2019
Student Abstracts

Department: Mathematics
Title: Using Random Walks to Generate City Council Districts in Seguin, TX
First Author: Le Johnson
Other Presenters: Mary Eby, Ariana Castoreno
Collaborators: Mary Eby, Ariana Castoreno, Alex Hall, Jordan (Ash) Lewis

Abstract

Gerrymandering has often been used to suppress the votes of minority groups and limit the representation of these groups on a municipal level. However, gerrymandering can also be used to give minority voters a stronger voice in an election.

In this presentation, we will discuss the issue of gerrymandering and how mathematics can be used to approach this problem on a local scale.Specifically, we focused on city council districts in Seguin, TX. To study this, we produced a large number of potential district plans from an initial district template in order to observe the number of district plans that provide an opportunity for minority communities to achieve more equal representation.

SAS2019
Student Abstracts

Department: Physics
Title: Automatically Generating Linked Scatter Plots to Determine Rare Stellar Remnant Candidates
First Author: Andrew Hamilton
Other Presenters:
Collaborators:

Abstract

There are only nine confirmed Low-Accretion Rate Polars (LARPs) known at this time, all in the Northern Hemisphere. Finding and characterizing more of these rare stellar remnants will help us determine their evolution and relationship to other cataclysmic variables. In this work, we developed a program that utilizes Linked Scatter Plots to reduce a large sample of stars to a list of stars whose properties are similar to those of the known LARPs. Data from various surveys of the sky, including SDSS, WISE, and XMM-Newton was used to automatically generate a set of filter conditions that were derived from characteristics of these LARPs, which were

used for the Linked Scatter Plots to sort through the stellar data and identify LARP candidates. We will present updated results from our search for these candidates.

SAS2019
Student Abstracts

Department: Physics
Title: Using a Computational Simulation to Model Interference Patterns from Optical Diffraction Gratings
First Author: Armando Gutierrez
Other Presenters:
Collaborators: Dr. Toni D. Sauncy, Dr. Calvin J. Berggren

Abstract

Diffraction occurs when light encounters an opening or obstacle which is of the same approximate size as the wavelength of the light. The light bends based on the geometry of an obstacle or opening, which produces an interference pattern that can be seen and measured on a screen some distance away. The standard diffraction grating, used for spectroscopic and other important applications, is an example of this. Within the theory of classical wave optics, it is possible to use a computational simulation to predict the interference pattern of a given grating, based on its geometry. In this work, a computational simulation was created with the purpose of generating a prediction of the interference pattern for a specified diffraction grating design. The predicted interference patterns were compared with their respective, experimentally tested, actual gratings. Additionally, the possibility was investigated to reverse the process to make a grating to produce a desired pattern.

SAS2019
Student Abstracts

Department: Physics
Title: Two-Dimensional Heat Flow Apparatus: Fabricating, Simulating, and Experimenting
First Author: Colton Kubena
Other Presenters:
Collaborators: Calvin Berggren, Toni Sauncy, Eric Ayars

Abstract

A two-dimensional heat flow apparatus was designed and fabricated for implementation into the Texas Lutheran University advanced lab program. This apparatus contains 100 Maxim Integrated DS18B20 Digital Thermometers that are arranged in a grid like fashion on an aluminum plate. Data gathered from the apparatus is then compared to a simulation created by solving the heat equation using the finite differences method. The accuracy of the simulation was then measured by comparing its results to that of the experimental data. Through this computational analysis, it can be concluded that the two-dimensional heat flow apparatus does produce viable data that can be recreated for advanced undergraduate heat transfer lab.

SAS2019
Student Abstracts

Department: Physics
Title: Fabrication of an atomic nebulizer for thin-film deposition
First Author: Daniel Morales
Other Presenters: N/A
Collaborators: Toni Sauncy

Abstract

The need for renewable energy solutions increases directly with growing world energy consumption. Options for cheap and effective methods of energy production are a driving motivation in materials research. This work aimed to design and fabricate a low-cost spray pyrolysis apparatus for the deposition of thin films. The device forms the foundation for the potential to produce thin film solar cells and simple devices using materials such as CuI deposited on a commercially available indium tin oxide (ITO) glass substrate. Spray pyrolysis has received much attention due to its cost effectiveness and ability to produce quality thin-film structures. In this work, the spray pyrolysis is accomplished via an off the shelf, commercially available nebulizer. Modifications were made to the device in order for the method to be effective with organic solvents. In this process, a design for the nebulizer-based spray-pyrolysis device that utilizes a custom polytetraflouroethylene (PTFE) fluidic containment chamber compatible with corrosive liquid solvent dimethylformamide (DMF) used with the CuI solution was developed and fabricated. Initial testing and analysis of the deposition device indicates that it functions as anticipated. Tests conducted to determine if the apparatus can deliver a smooth, controllable flow of atomized precursor solution, along with effects of various nozzle distances and pressures will be discussed.

Keywords: Renewable energy, atomization, nebulizer, thin-films, vacuum chambers, PTFE, spray pyrolysis, organic solvents

SAS2019
Student Abstracts

Department: Physics
Title: Fabrication of a Handheld Muon Detector for Implementation in Advanced Undergraduate Research Labs
First Author: Emily Churchman
Other Presenters:
Collaborators: Dr. Toni Sauncy, Spencer Axani, Dr. Sherry Yennello, Dr. Andrew Zarrella, Dr. Calvin Berggren

Abstract

A handheld muon detector, based on the device designed and made publicly available by CosmicWatch, has been constructed for the detection of cosmic ray muons found in the atmosphere. [1] The detector contains three main components: an EJ-212 plastic scintillator, a micro PhotoMultiplier Tube (PMT), and printed circuit boards (PCBs). The primary objective of this work is to develop a new advanced lab option for the Texas Lutheran University Physics Department that expands laboratory content into the realm of particle physics experiments. Practical details encountered in the construction of the detector are discussed, along with the numerous challenges encountered related to those practical details, primarily in learning new soldering techniques. Initial analysis and testing of the completed detector to confirm proper function along with initial particle detector results are presented. Details of the layout for the component placement on the PCBs is also presented, as well as a detailed guide for the production of a second detector in the future.

Keywords: muon, handheld detector, muon detection, experimental particle physics, senior thesis, undergraduate research

[1] S. Axani, K. Frankiewicz and P. Przewlocki, "CosmicWatch," Massachusetts Institute of Technology, Massachusetts, 2017.

SAS2019
Student Abstracts

Department: Physics
Title: Investigation of Force Applied by Load-securing Lashing straps
First Author: Jacob Guercia
Other Presenters:
Collaborators: Toni Sauncy

Abstract

In the realm of long-haul transportation of merchandise, the standard method for securing loads on flat bed trailers is the use of a four-inch strap which is tightened through the use of a standard ratchet and pawl mechanism. This work reflects a yearlong investigation, requested by the safety manager of Schneider National trucking company, of the differences in load securement between the standard four-inch ratchet strap and a newer two-inch ratchet strap manufactured by the same company but with different materials. One question was whether a tandem two-inch securement was as secure as a single four-inch strap application. To investigate the overall safety of the two strapping methods, an experiment was designed around measuring the downward force on the load that was produced by the straps after tightening with a standard ratchet. The force was measured at various angles, and a modified engineering analysis was performed on the measured data to compute the required number of straps for a typical load. The model load used was a 46,000 pound rebar load, a standard load for Schneider. Measurements and analysis revealed that the two-inch strap outperformed the four-inch strap when analyzed using required DOT safety requirements.

SAS2019
Student Abstracts

Poster Presentation Abstracts

SAS2019
Student Abstracts

Department: Biology
Title: Stapylococcus aureus Prevalence in an Asymptomatic Population in South Central Texas
First Author: Loan Vu
Other Presenters:
Collaborators:

Abstract

Staphylococcus aureus is a common skin bacterium that is found as a commensal species in many humans. For this research, we looked at the carrier rate in a population of mainly young women, ages 15-18. Staphylococcus aureus was targeted to find a specific strain called MRSA (Methicillin Resistant Staphylococcus aureus) in students' noses that participated during the Texas Lutheran University STEM woman's day, Nursing Boot Camp and the New Braunfels Science Fest in July and October 2018. Four in twenty-seven (14.8%) TLU participants carried S. aureus in their noses identified by the growth on Mannitol Salt agar plates. Only one (3%) of those turned out to have the MRSA gene, which confers the ability to resist many common antibiotics.

RUNNER UP

TLU Outstanding Undergraduate Research for Presentation at the Texas State Capitol

SAS2019
Student Abstracts

Department: Biology
Title: Casearia: Malagasy plant species from Madagascar
First Author: Marquise Gates
Other Presenters:
Collaborators:

Abstract

Casearia is a pantropical genus found in sub-tropical and tropical regions of Madagascar which is identified under the plant family Salicaceae, the willow family (Callmander 2011). Casearia is identified as a vascular plant in Madagascar and in many botanical gardens. Both Madagascar botanist and some botanical gardens botanist/taxonomist have dedicated their time into developing detailed information and databases about this plant. Where taxonomist and botanist explain the taxonomical details, methods, information, and descriptions about these plants that were discovered. Most botanists take into consideration when unidentified plants are found, to try and identify them as potentially new species using a number of taxonomic practices and methods for this process. Also, Casearia holds economic importance in herbalism for its medicinal properties in synthesizing aspirins for fevers, headaches, and other inflammations, which is just another reason as to why Casearia is a plant worth studying and understanding more about.

SAS2019
Student Abstracts

Department: Biology
Title: How gender affects Parkinson's Disease
First Author: Nicole Patterson
Other Presenters:
Collaborators:

Abstract

Parkinson's disease is affected by gender but how it is affected is not very well understood. There are studies that have been done to see the effects that gender has on the symptoms, prevalence, and duration of this disease. The duration of the disease is usually 10 years and it shortens life expectancy so it could be less or it could be more depending on the person. The symptoms of Parkinson's disease include psychiatric problems, behavioral problems, cognitive dysfunction, sleep disturbance, gastrointestinal problems, sexual dysfunction, cardiovascular symptoms, depression, and motor fluctuations. These symptoms can present themselves differently in males and females. Females experience wearing off while chronically using the drug Levodopa and males have a higher chance of getting the disease in the first place. Estrogen is thought to be a neuroprotectant for women and that may be why males are more likely to get the disease. Some patients go through deep brain stimulus of the subthalamic nucleus which stimulates their brain and helps with cognitive functions. Females have a better outcome with increase in cognition after the surgery compared to males. Studies are being done to start to understand why and how gender affects Parkinson's disease.

SAS2019
Student Abstracts

Department: Chemistry
Title: FIRST STEPS TOWARDS FAST AND SELECTIVE SYNTHESIS OF SUBSTITUTED PYRANONES
First Author: Brian Burpo
Other Presenters: Brian Burpo, Hannah Martin
Collaborators: Hannah Martin, Meghan Neill

Abstract

Pyranones are known to form cores of biologically-relevant molecules. Efficient, few-step processes to generate pyranones with controlled stereochemistry have great potential applications to medicinal research. For example, protein tyrosine phosphatase 1B (PTB1B) deficiency is believed to decrease insulin in Type 2 Diabetics. Pyranone-derived structures have potential applications in inhibiting protein tyrosine phosphatase 1B (PTB1B), thereby having a potential application in treatment of Type II diabetes. A fast method for the generation of stereospecifically controlled pyranones allows access to millions of new relevant building blocks which are relevant to target synthesis versus diabetes, dementia, hepatitis C and more.
The method for synthesizing the core is a three-step synthesis. The first step is the generation of a beta-hydroxy acid through reaction of a substituted acid and an aldehyde. The beta-hydroxy acid is reacted with benzenesulfonyl chloride to form a beta-lactone. The beta-lactone can then be reacted with a substituted titanocene to form a trapped enolate, which, when opened with a Lewis acid and lithium bromide, should generate a lactone with four substituents. All of our first steps will be to prove feasibility of concept, followed by production of biologically interesting molecules. IR and NMR analyses were performed to determine the reaction proceeded.

SAS2019
Student Abstracts

Department: Data Analytics
Title: Data Mining with the Charles Book Club
First Author: Kaci Pecht
Other Presenters: Andrew Leal
Collaborators: Andrew Leal

Abstract

For our presentation, we will be investigating and analyzing a customer dataset from the Charles Book Club, through the utilization of various data mining techniques. The dataset includes an active database of 500,000 readers, most which were acquired through advertising in specialty magazines. Through the data mining process, we wish to increase bottom-line profits for the Charles Book Club in order to improve mailing yields and remain profitable. We decided to use a two-step approach when looking at this issue. The first step being, for each new title we will to conduct a market test involving a random sample of 4,000 customers from the database to enable analysis of customer responses. This would create and calibrate response models for the current book offering. The second step is based off response models obtained, taken to compute a score for each customer in the database. We then use this score, along with a cutoff value in order to extract a target customer list for direct mail promotion. For the purpose of our task at hand, we will focus on two different fundamental data mining techniques: k-nearest-neighbors and logistic regression. We will then compare them with each other as well as with an industry standard practice known as RFM (recency, frequency, monetary) segmentation, in order to find a model that best fits the data.

SAS2019
Student Abstracts

Department: Holden Village Service Trip
Title: Church Camps, Youth Ministries and Holden Village
First Author: Kacie Hall
Other Presenters:
Collaborators:

Abstract

I researched about the similarities and differences of church camps in the U.S. and their programs they offered as well as how the camp is run. I have compared this to Holden Village in Washington and how they relate to each other.

SAS2019
Student Abstracts

Department: Holden Village Service Trip
Title: Mindful Eating
First Author: Mariana Santos
Other Presenters:
Collaborators:

Abstract

This presentation will be composed of what has made the food industry today a hazard, along with how people will continue to suffer if the system continues to be allowed and widely supported by families. The presentation will also include organizations that aim to get rid of such toxic industries and promote preservation of the real farming industry. Lastly there will be a section on how ordinary people can become mindful eaters by changing small things in their every day life. The objective of my presentation is to make individuals become more aware of what is happening in our food system and give strategies and recourses for them to slowly change their careless eating habits, while exploring how Holden Village ties into this topic.

SAS2019
Student Abstracts

Department: Mathematics
Title: A Probability Model for Predicting the Outcome of Soccer Matches Knockout Rounds: Overtime and Beyond
First Author: Nate Silver
Other Presenters:
Collaborators:

Abstract

In this paper, we have developed probabilistic models, which can be used to determine a reasonable probability model of winning in an international soccer game as a function of the difference in ranking (FIFA and ELO) for matches which either ended at the overtime or penalty kicks.

We intend to show that the probability of winning for the higher ranked team decreases as the games goes beyond the regular 90 minutes' time. For a more complex model we will introduce other variables such as home field advantage.

We have used over 30 years of data (six world cups, and six European, Asian, African cup of nations, Copa America and UEFA Euro championships) to create our model which is a single variable and multivariable logistic (LOGIT) model

$$p = \exp(-a-\sum b_i x_i)/(1+\exp(-a-\sum b_i x_i))$$

where x1 : difference in FIFA or ElO ranking and x_i for i=2... are other variables affecting the game and $p(x_1, x_2)$ is the probability of winning

SAS2019
Student Abstracts

Department: Mathematics
Title: Using Random Walks to Generate City Council Districts in Seguin, TX
First Author: Le Johnson
Other Presenters: Mary Eby
Collaborators: Mary Eby, Ariana Castoreno, Alex Hall, Jordan (Ash) Lewis

Abstract

Gerrymandering has often been used to suppress the votes of minority groups and limit the representation of these groups on a municipal level. However, gerrymandering can also be used to give minority voters a stronger voice in an election.

In this presentation, we will discuss the issue of gerrymandering and how mathematics can be used to approach this problem on a local scale.Specifically, we focused on city council districts in Seguin, TX. To study this, we produced a large number of potential district plans from an initial district template in order to observe the number of district plans that provide an opportunity for minority communities to achieve more equal representation.

TLU Outstanding Undergraduate Research for Presentation at the Texas State Capitol

SAS2019
Student Abstracts

Department: Nursing
Title: Preparing Parents of Pediatric Kidney Transplant Recipients in their Child's Readiness to Transition Towards Self-Management of Care
First Author: Ellysse Cruz
Other Presenters: Perla Arellano, Megan Clark, Connor Dunmore, Janet Berryman
Collaborators: Perla Arellano, Megan Clark, Connor Dunmore, Janet Berryman

Abstract

Abstract

Kidney transplant recipients who recently transitioned from pediatric to adult healthcare services are at risk for organ rejection and failure (McQuillan, Toulany, Kaufman & Schiff, 2015). Limited research was identified concerning the parents of pediatric kidney transplant recipients and their role in pediatric kidney transplant recipient's (PKTR) readiness to transition to adult health care services. In this proposed study, the Roy Adaptation Model will be used to design and implement a Letting Go workshop to improve readiness to transition to adult healthcare services in PKTRs and their parents. It is hypothesized that teen/parent kidney transplant recipient dyads whose parents attended a "letting go" themed parenting workshop will report higher overall transition readiness scores when compared to those who did not attend. A randomized controlled trial with a convenience sample is proposed. Thirty parent-PKTR dyads from Texas Children's Hospital (TCH) in Houston, Texas will be randomized to either the intervention (Letting Go workshop) or delayed intervention control group (workshop after the completion of data collection). Readiness to transition will be measured using the Readiness to Transition tool. A demographic questionnaire will be used to facilitate description of the sample. Demographic data will be analyzed using measures of central tendency,

and the Mann-Whitney U test will be used to analyze data from the Readiness to Transition tool. Prior to implementation of the study permission will be obtained from the institutional review boards at TCH and Texas Lutheran University.

Reference

McQuillan, R. F., Toulany, A., Kaufman, M., & Schiff, J. R. (2015). Benefits of a transfer clinic in adolescent and young adult kidney transplant patients. Canadian Journal of Kidney Health and Disease, 2:45(8). https://doi.org/10.1186/s40697-015-0081-6

SAS2019
Student Abstracts

Department: Nursing

Title: An Analysis of Factors that Impact Rural Seniors' Access and Use of Healthcare: A Proposed Research Study

First Author: Alexis Nelson
Other Presenters: Katelyn Palmer, Hadassah Molina, Alexis Nelson
Collaborators: Katelyn Palmer, Hadassah Molina

Abstract

Abstract

Evidence suggests that the numbers of persons 65 years and older who reside in rural areas are increasing at faster rates than in urban areas (Quinn, Sanders, & Petroll, 2017). Not only are they aging faster, evidence also suggests that the rural elders experience higher mortality rates resulting from preventable medical causes, insufficient numbers of physicians, and the lack of needed healthcare services located in their communities (CDC, 2017). Few studies address the factors that impact rural elders' access and use of healthcare as opposed to urban dwelling elders. The proposed study will employ a quantitative non-experimental cross-sectional methodology utilizing descriptive and simple correlation statistical analyses. The proposed study will identify factors from a review of the literature that bear most directly on rural elders' ability to access and utilize healthcare. The proposed study will include rural elders who are 65 years or older and living independently in Seguin, Texas and surrounding communities. The study sample will consist of 50 participants using convenience and snowball sampling. Participants will be recruited at local centers such as the Silver Center and from the surrounding community. The proposed study is significant because it will examine the factors that impact rural elders' access to healthcare in order to further the body of knowledge and it may aid in providing a guide for the development and implementation interventions to improve rural senior's access and effective utilization of

healthcare, allowing them to age in place rather than in long-term facilities.

SAS2019
Student Abstracts

Department: Nursing
Title: The Effects of Health Literacy on Medication Adherence in Older Adults with Type 2 Diabetes Mellitus: A Proposed Research Study
First Author: Cecilia Fussell
Other Presenters: All collaborators will "present"
Collaborators: Amanda Galvan, Megan Harvey, Jazmin Willie

Abstract

There has been an increase in recent years in the number of people who have been diagnosed with type II diabetes mellitus. One of the biggest reasons for this is an imbalanced nutritional intake and sedentary lifestyle, including difficulties with dietary restrictions and an overall lack of knowledge about prescribed medications, specifically insulin. In order to reverse this and prevent long term complications associated with type II diabetes mellitus, researchers investigated the effects of health literacy on medication compliance with people who have poorly controlled Type II diabetes mellitus. A quasi-experimental design using the Newest Vital Sign will be utilized in order to evaluate medication compliance and knowledge prior to and after patient education classes regarding type 2 diabetes. Education will be taught to community members in a classroom setting in Seguin, Texas, and surveys will be distributed to participants. Upon collection of our data, a better insight about the relationship between health literacy and medication compliance of poorly controlled type II diabetes mellitus will be determined.

SAS2019
Student Abstracts

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SAS2019
Student Abstracts

Department: Nursing
Title: Barriers to Communication; Proposed Research Study
First Author: Pamela Convertino
Other Presenters: All
Collaborators: Kayla Gonzales, Sara Gribbon, Miranda Setzer

Abstract

Mobility aids individuals in performing activities of daily living, expressing emotions, and gratifying basic needs, as well as sustaining our health and enhance our body's ability to heal and repair. The proposed research will identify barriers to patient mobilization and why mobilization is not implemented within a healthcare facility. By identifying healthcare professional's attitudes and perceptions, level of knowledge regarding mobilization, time constraints, and other barriers hindering patient mobilization, the study will provide feedback regarding how facilities can increase compliance with mobility protocol. Boehm (2017) reported: "Only 12% of health care providers implement the routine of spontaneous awakening trials, delirium assessment, and early mobility." Dermody and Kovach found that "Lack of sufficient mobility contributes to the functional decline in hospitalized patients" (Dermody & Kovach, 2017). "With bed rest or a dramatic reduction of mobility, the body systems most affected are metabolic (fluid and electrolyte imbalance), respiratory (hypostatic pneumonia), cardiovascular (orthostatic hypotension and thrombi), musculoskeletal (atrophy and contractures), urinary elimination (infection and dehydration), integumentary (pressure ulcers) and psychosocial (depression)," (Peterson & Bogue 2011). In examining a solution, the researchers asked, "What barriers affect a nurses' ability to mobilize patients?" Nola Pender's Health Promotion Model is used and encourages health professionals to look at behaviors that impact health promotion.

SAS2019
Student Abstracts

Department: Physics
Title: Characterization of ParTI Phoswiches with the Use of Charged Pion Beams
First Author: Emily Churchman
Other Presenters:
Collaborators: Dr. Andrew Zarrella, Dr. Mike Youngs, Dr. Sherry Yennello

Abstract

The Partial Truncated Icosahedron (ParTI) detector array consists of 15 phoswiches. Each phoswich is made of two scintillating components – a thallium-doped cesium iodide (CsI(Tl)) crystal and an EJ-212 scintillating plastic – coupled to a photomultiplier tube. Both materials have different scintillation times and are sensitive to both charged and neutral particles. The type of particle and amount of energy deposited determine the shape of the scintillation pulse as a function of time. By integrating the fast and slow signals of the scintillation pulses, a “Fast vs. Slow Integration” plot can be created that produces particle identification lines based on the energy deposited in the scintillating materials. Four of these phoswiches were taken to the Paul Scherrer Institute (PSI) in Switzerland where π^+, π^-, and proton beams were scattered onto the phoswiches to demonstrate their particle identification (PID) capabilities. Using digitizers to record the detector response waveforms, pions can also be identified by the characteristic decay pulse of the muon daughters.

National CUR Posters on the Hill Selection

SAS2019
Student Abstracts

Department: Physics
Title: Diversity is the key: Building a STEM teacher education program at Texas Lutheran University
First Author: Heather Perkovich
Other Presenters:
Collaborators:

Abstract

Culture can be defined as "a way of life, a way of being and doing things that is understood by a particular group of people whose ways are distinct from other cultures." The community surrounding TLU is home to a diverse group of people. The need for highly qualified, culturally competent K-12 STEM educators in the largely rural, high needs school districts in our region is well documented. Recently, TLU has begin working toward establishing a unique program to inspire students in physics, chemistry, mathematics and biology to pursue careers in STEM education. The overall goal of the project is to develop research-based practices for recruiting and retaining STEM students from diverse backgrounds into educator career paths. The teacher training program aims to bring cultural awareness directly into college STEM classes so that the future educators are informed an empowered in addressing the culture and facing the challenges in their future classrooms.

SAS2019
Student Abstracts

Department: Physics
Title: Image Processing and the Enhancement of IBALL (Informational Bio-effects Atlas of Laser Lesions)
First Author: Matthew Macasadia
Other Presenters:
Collaborators: Jacob Rivera, Oscar Garza, Aaron Engler

Abstract

Many studies have been conducted to learn more about retinal laser lesions. However, much of this data has not been processed for use. This led to the development of the Information Bio-effects Atlas of Laser Lesions (IBALL). This system was designed as an educational resource for the Department of Defense researchers and clinicians. Originally, IBALL was filled with a handful of images from one study, but we have sought to add more processed data to the system. Using Python and image processing techniques, we developed an automated methodology to process images from 4 different laser lesions study to add to the existing IBALL database. We will present our automated process and initial results.

SAS2019
Student Abstracts

Department: Physics
Title: Fabrication and Characterization of Simple Organic Polymer Diodes (OLEDs)
First Author: Nwankwo-Ikechi Kanu Nwankwo
Other Presenters:
Collaborators:

Abstract

The fabrication of Light Emitting Diodes (LED) structures using organic polymer materials in thin layers is a topic of much current research. The commercially availability of the polymers used to fabricate these structures has made it possible for undergraduate advanced labs to make simple devices. This work focuses on developing a simple and reproducible procedure that can be used by undergraduate students to produce reliable LED devices. The bi-layer structure consists of an MEH-PPV polymer layer and a PDOT-PSS polymer layer sandwiched between an Indium Tin Oxide (ITO) coated glass slide and a plain glass slide outfitted with a metallic contact strip. An layer of Indium Gallium Eutectic metal is used as the electrical conduit between the polymer layer and the metallic contact strip, and serves as the cathode. The bottom ITO layer serves as the anode. The results have been inconsistent primarily due to difficulties in layering the Eutectic metal on the ITO above the polymer, as well as the type of xylene solvent that was being used. Details of device structure and process steps are currently being investigated and potential solutions to unreliable device performance are presented.

SAS2019
Student Abstracts

Department: Physics
Title: Using Python to Create Light Curves of White Dwarf stars
First Author: Roel Olvera II
Other Presenters:
Collaborators:

Abstract

The lightcurves of variable white dwarfs can be used to measure pulsational properties of single white dwarfs and geometric properties of white dwarfs in binaries. These properties can assist our understanding of the structure and evolution of various white dwarfs. We will introduce a new program to analyze photometry collected with the SOAR Telescope. This program is written entirely in Python. We will present initial results looking at two pulsating white dwarfs and discuss ways to improve our program. I will also discuss the progress in my program that I've made over the past few months.

RUNNER UP

TLU Outstanding Undergraduate Research for Presentation at the Texas State Capitol

SAS2019
Student Abstracts

Department: Physics
Title: Fabrication and Characterization of Porous Silicon Thin Films
First Author: Jason Williams
Other Presenters:
Collaborators:

Abstract

Porous Silicon (p-Si) refers to a thin film matrix structure of nanoscale crystalline Si, typically formed atop a bulk single crystal Si substrate. The p-Si structure has been fabricated on a wide range of Si substrates and is interesting because the porous silicon thin films exhibit optical emissions not possible in ordinary crystalline silicon. At TLU, we have fabricated a series of porous silicon thin films on p-type and n-type crystalline silicon substrates using an anodic etching cell technique. Wafers are prepared with a chemical cleaning process and then submerged in hydrofluoric acid and subjected to an electric field. Process time and current density were varied to examine the effect on the resulting optical emission, we can influence the resulting optical properties. Raman spectroscopy was used to ascertain the resulting crystalline structure of the material, and photoluminescence was measured from each of the prepared samples.

SAS2019
Student Abstracts

Department: Political Science
Title: "Killing the Protectors: Macro Level Determinants of Environmental Activist Killings"
First Author: Eric Cantu
Other Presenters: Derek Guevara
Collaborators: Derek Guevara, Dr. Braaten

Abstract

What countries are most dangerous for environmental activists? In many countries around the world advocating on behalf of the environment, which also usually means advocating against the interests of major multinational corporations and governments, can be deadly. The NGO Global Witness has been documenting and publicizing the killing of environmental activists since 2002 and reports that in 2017 alone there were almost 200 environmental activists killed. Using the data published by Global Witness this paper examines the macro level determinants of environmental activist killings with attention given to the political and environmental factors that contribute to the creation of deadly environs for environmental activists. We find that regime type is a significant determinant of environmental activist killing with democracies being more dangerous than authoritarian regimes. Additionally, countries with more corruption, more human rights abuses, and higher levels of deforestation also have more environmental activist killings. The openness afforded to activists by democracies gives them space to protest environmental problems, however in countries with more corruption, poor human rights records, and higher levels of deforestation this situation can increase their vulnerability to violence.

SAS2019
Student Abstracts

Department: Political Science
Title: Why Brexit not Grexit?
First Author: Garrett Chollett
Other Presenters:
Collaborators:

Abstract

This project attempts analyze the move by the United Kingdom to leave the European Union. I will attempt to understand why Britain went through with the invocation of Article 50, while Greece decided to back down on their threats to leave the EU. The question of, Why Brexit, not Grexit, is difficult to answer, and there are many more questions popping up as the UK hurtles towards their final exit date. Greece deciding against leaving the EU might not have solved all of their problems and I will also attempt to answer the question of what do these two countries do now? The relationship between Britian and the EU seems to be incredibly fractured but not all ties have been severed yet.

SAS2019
Student Abstracts

Department: Political Science
Title: Brexit and EU Legitimacy
First Author: Jenny Crosby
Other Presenters:
Collaborators:

Abstract

https://drive.google.com/open?id=1BdJI2c19osvjbudUeb8DlOUdiL0wrFpEPZxTXKOyWzc

SAS2019
Student Abstracts

Department: Political Science
Title: Changing Perspectives: Refugee Resettlement Across Europe
First Author: Raquel Morris
Other Presenters:
Collaborators:

Abstract

Today, we see a lot of news aimed towards the destruction of our perception of immigrants as well as the defense of immigrants to those attacks. It should be noted that an immigrant and a refugee are similar but not exactly the same thing, however it is very common to view them in the same light. A refugee is someone who has been forced to leave their origin country due to war, violence, or persecution, while an immigrant could have left for any reason. Because of this difference, a person can take the position of anti-immigrant yet also be pro-refugee. Since few people recognize the difference between immigrants and refugees, the dialogue that most or all immigrants are dangerous people has become hazardous to those entering countries looking for proper civil rights and to benefit the nation-state they migrate to. These prejudiced opinions create a pre-determined ideology against immigrants which can potentially harm the decision to let refugees into a country. Economic factors also pose a potential threat. Job security as well as the financial 'burden' of hosting refugees are two major concerns of those not wanting to let refugees stay in their country.

SAS2019
Student Abstracts

Department: Political Science
Title: The role Brexit plays on the current relationship with the United Kingdom, Northern Ireland, and Ireland.
First Author: Jamison Davis
Other Presenters:
Collaborators:

Abstract

The relationship between Northern Ireland, Ireland, and the United Kingdom has not had the best history. There have been conflicts since the British colonization of Ireland. Historically, the two countries and the region have been split in a religious conflict, but after a war between the three regions, there has been much progress with the keeping of peace. With the United Kingdom leaving the European Union, this has the potential to change that peace keeping effort in that part of the globe. As the United Kingdom is leaving the European Union, Ireland is not going to be leaving the European Union, which means the United Kingdom region of Northern Ireland is going to be leaving the European Union while still being a part of the Irish island. This has the ability to cut the movement of goods and people between Northern Ireland, United Kingdom, and Ireland and challenge current policy between the two nations. The British exit from the European Union will change the relationship but it is unclear what will happen on March 29th.

SAS2019
Student Abstracts

Department: Psychology
Title: The Untold Benefits: Employment Can Improve Academic Leaders
First Author: Julian Gomez
Other Presenters: Jillian Breeden, Thomas Snooks
Collaborators: Jillian Breeden, Thomas Snooks, Dr. Tiffiny Sia

Abstract

Minority students face certain challenges in college like the racial achievement gap, a sense of belonging, and financial security. Taking on a job in college can cause issues like not attending class or not studying enough. The Peer Mentor position at TLU may be more manageable. We gathered a list of Peer Mentor teams from the past 10 years and made sure to keep their information confidential. We matched 118 Peer Mentors with academic twins when they entered TLU, the only difference was if they were a Peer Mentor or not. Peer Mentors have better retention and are less likely to incur more student debt. Being a Peer Mentor is a predictor for Course Completion and higher GPA. Next we looked at Course Completion or SAP, which is basically who is dropping or failing less classes throughout their time in college. Peer Mentors were dropping or failing less classes than our Matches. This is great because that means they could actually graduate in 4 years without having to worry about staying in school longer and being at risk of losing federal financial aid. Peer Mentors had higher Final TLU GPAs than our matches. Additionally, it is significantly beneficial for minority students because it appears to close the achievement gap between minority and non-minorities. And for the Peer Mentors which had GPAs at 3.0 or above this helps open the doors for graduate schools. This information could help advisors encourage students to apply to be a peer mentor who would benefit from this position.

SAS2019
Student Abstracts

Department: Psychology
Title: What the Face? Emotional Expression in the Taboo Stroop Effect Paradigm
First Author: Kristen Moore
Other Presenters:
Collaborators: Siobhan Patterson, Leslie Flores, Dr. Scott Bailey

Abstract

Classic Stroop interference appears when words are 1) presented in 'ink', 2) color names and the ink color are incongruent, and 3) the participant must name the ink color. This experiment is a manipulation of the classic Stroop and focuses on the conflict condition involving identifying the ink while taboo and neutral words are presented. In addition, Noldus FaceReader software captures expressions during stimulus presentation. We sought to examine if more salient words would be better recalled. Participants included 40 students from Texas Lutheran University. Each participant performed 20 practice trials, which were presented in the classic Stroop design. After completing those, the experiment proper began. Each student was presented 20 neutral words and 20 taboo words, all in different colors. After completing the task, they were given a free recall test. After conducting trials, analysis of data revealed a significant effect in recalling taboo words more than neutral words.

SAS2019
Student Abstracts

Department: Psychology
Title: What the Face? Emotional Expression and Conformity with 1970s M*A*S*H Laugh Tracks
First Author: Katelyn K. Locke
Other Presenters:
Collaborators: Amaris I. Diaz, Garrett W. Case, Dr. Scott Bailey

Abstract

Do you have a friend with a contagious laugh? The present project was designed to examine if laugh tracks in TV shows might influence reactions to sad or funny episodes of the television series M*A*S*H based on emotional contagion and conformity from the unseen "peers" from the laugh tracks. Participants included 36 students from Texas Lutheran University. Each participant watched the same two episodes of M*A*S*H: a funny episode ("Tuttle") and a sad episode ("Abyssinia, Henry"). Presentation of episodes was counterbalanced. For example, Subject 1 watched the funny episode then the sad episode; Subject 2 watched the sad episode first then watched the funny episode. Each participant watched two episodes, both with the laugh track either on or off. For example, Subject 1 watched both the funny and sad episode with the laugh track on and Subject 2 watched the funny and sad episode with the laugh track off. After they watched the two episodes of M*A*S*H, the participants completed a survey in which they described any emotional reaction to the stimuli. Noldus FaceReader software was used to evaluate facial expressions of happiness during exposure to the stimuli. After conducting trials, an analysis of the data revealed that the laugh track on/off had no significant effect on the data. There was a significant order effect, suggesting emotional carry over. Participants who viewed the sad episode first expressed less happiness than those who watched the funny episode first.

SAS2019
Student Abstracts

Department: Social Entrepreneurship
Title: Triple Bottom Line
First Author: Cailee Willis
Other Presenters:
Collaborators:

Abstract

Traditionally businesses only focus on one thing, maximizing shareholder profit. However, the triple bottom line puts an equal weight on two other aspects- people and planet. Businesses, not-for-profits and governmental entities a-like use this framework as a basis in decision making. This framework allows for a better understanding and accurate representation of an entity's overall impact.

SAS2019
Student Abstracts

Department: THEO/SISE
Title: Social Justice and the Lutheran Tradition
First Author: Gabriella Conklin
Other Presenters:
Collaborators:

Abstract

My presentation will discuss Martin Luther's ideas and theology behind dutiful Christian service. Luther's idea for a Common Chest was just one of the many ideas and contributions he made in an effort to serve the poor. Luther's ideas and teachings on serving the poor have spilled over into the Lutheran traditions and practices that are still with us. Today the ELCA spearheads many projects and efforts dedicated to serving the poor.

SAS2019
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SAS2019
Student Abstracts

Department: Theology
Title: Vocation Through the Lens of a Lutheran
First Author: Elizabeth
Other Presenters:
Collaborators:

Abstract

Vocation is often described as a job that one seeks through a specific career. Through research I have discovered that Martin Luther sees vocation to not just be one occupation, but to be seen through our daily chores and among our relationships with thy neighbors. Even during the medieval period vocation was only acknowledge through religious roles. However, Luther taught different then other denominational beliefs claiming that all callings are equal in and out of the church. Therefore, vocation is not just a one "occupation" type thing. Vocation is the purpose or calling one faces through living everyday life.

SAS2019
Student Abstracts

Department: Theology (Holden Village)
Title: THINKING INSIDE THE BLACK BOX: THEORIES OF OUTDOOR EDUCATION AT HOLDEN VILLAGE
First Author: Kait Steele
Other Presenters:
Collaborators:

Abstract

Black box theories are theories defined only by their function. In relation to this topic, it means that we know outdoor education works, but are unable to prove/agree on why or how. People seem to be content with not knowing what happens in the "black box" because participants are better off when they come out regardless of whether we understand how or not. Outdoor education can be defined many ways and put into practice more ways than that. Because of this, it is difficult to pinpoint what specifically works and triggers learning. Studying outdoor education is like putting an elephant in a dark box and sending people in. Upon leaving the box, people reflect on the parts that spoke to them and stood out: the trunk, an ear, even the tail. Scientists do studies of the right front toenails and the left ear to try and understand what those people experienced. Everyone left the black box experience knowing their personal experience but do not know enough about it to share. The man holding the trunk is swearing it is a python and they all need to run. Everyone knows they have studied a small part of the elephant, but some pretend they have studied the entire elephant. Others say if you keep messing with it, you'll kill it so let's just enjoy the ride! Some of those people won't know enough about riding elephants and will fall off, and sometimes, someone gets trampled. Everyone is now holding onto to a piece of elephant yelling at others that they have the most important part, because they don't know about any other part of the elephant. What transpires is a human knot, a

SAS2019
Student Abstracts

pissed off elephant, and a headache. Just like this excellent example, people go into the outdoor education experience and come out for the better, but we cannot agree on what happens there in the middle of the black box. Let's dive in!

SAS2019
Student Abstracts

Department: Theology, Holden Village
Title: Holden Village: the Impact of Fires and Water
First Author: Allisson Landrum
Other Presenters:
Collaborators:

Abstract

Holden: the Impacts of Fire and Water is about how Holden Village had been affected by the environment around it. Along with information of the history of the place itself. This presentation will shows peoples that theology and religion can have a large impact on Peoples lives. As well talk about how Holden nearly became lost due the Wolverine fire in 2015. I hope that l can share with other people of a wonderful place that of got to learn this semester.

SAS2019
Student Abstracts

Department: Theology/Social Entrepenuership
Title: Between Holden and Santiago de Compostela: The Role of Pilgrimage Today
First Author: Andrew Lueker
Other Presenters:
Collaborators:

Abstract

Pilgrimage is an ancient religious practice that has spanned over centuries with varying purposes as to why people choose to make a massive journey by foot. Pilgrimage is, however, tied together, by the transformative process that encompasses such a long, difficult journey. This presentation analyzes pilgrimage by comparing the location of Santiago de Compostela, a city in Spain famed for centuries because of the famous Camino de Santiago (or series of trails leading to the city) and its cathedral, which is said to be the resting place of St. James, to Holden Village, a mining town turned Lutheran retreat center that me and my class will be travelling to in May.

SAS2019
Student Abstracts

Department: Theology/Social Entrepreneurship
Title: From the Ashes of Disaster: The Story of the Wolverine Fire
First Author: James Carter Montgomery
Other Presenters:
Collaborators:

Abstract

Picture it; it's a hot summer day in the mountains of Chelan, WA, when disaster strikes in the form of a lightning bolt. The great Wolverine Fire of 2015 was born. Surrounded by abnormal weather patterns and treacherous landscape, how will the peaceful community of Holden Village bear the storm? Will the area ever look the same again?

SAS2019
Student Abstracts

Department: Theology/Social Entrepreneurship
Title: Earth, Water, Air and Fire
First Author: Heather Perkovich
Other Presenters:
Collaborators:

Abstract

Holden Village is a place for Lutherans/Christians to come together and think about what being a Christian means. In the Summer of 2015, the Wolverine Fire in the Cascade Mountains in Washington burned many acres, including the area around Holden Village. Holden Village was saved from the use of an external sprinkler system. This project looks into how and why external sprinkler systems should be implemented in fire prone areas in the the United States, as it is used in other countries as a preventative step to save buildings or properties from fires.