Greetings!

The University of Arkansas - Fort Smith proudly welcomes you to the 12th Annual Student Research Symposium. Our faculty and staff are committed to fostering an environment that promotes not only learning but also enlightenment. As you will see in today’s presentations, our students have accepted the challenge, explored unique areas of research, and synthesized their results in the form of lectures, studio art, demonstrations, posters, and performances.

These presentations represent the academic diversity of UAFS’s programs and the intellectual excellence of our students. On their behalf, thank you for your participation. I invite you to engage the presenters during the question-and-answer segments of their presentations. Your active involvement ensures that UAFS remains a dynamic learning community.

Dr. Georgia Hale
Provost and Vice Chancellor for Academic Affairs
Acknowledgements

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Kevin Jones
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Presentations in Legal Studies

Health Science 120

2:00  Brinae Waid
2:30  Casey Miller
3:00  Alexandria McLendon
3:30  Shelia Posey
Who’s the Boss: How Hollinger Got it Wrong
Presented by Brinae Waid
Faculty Sponsor: Dr. Lisa Norris

“In the best interest of the child” is the standard that courts use in deciding child custody cases. The Arkansas child custody statute states that courts may consider the preference of the child when determining the best interest of the child. The “best interest of the child” standard should clearly supersede the preference of the child. Hollinger v. Hollinger produced a ruling in favor of the children’s preference over their best interest. The dissenting opinion in the case argued that Court should not decide cases “based on the whim and fancy of children.” The Court ignored other factors, like parenting ability, that contributed to best interest. A court should listen to the preference of the child but should not depend on it exclusively to make a decision. The Hollinger v. Hollinger majority opinion, therefore, should have considered all factors in what the best interest of the child may be.

Brinae Waid is a sophomore in the legal studies program at UAFS. She was home educated from first through 12th grade and graduated in 2011. After one failed semester at college, she took time off to work and figure out what she wanted to do. She went back to school in 2017 and has since been on the dean’s list and is secretary of the Non-Traditional Student Organization. She hopes to graduate in December of 2019 and get a job as a family law paralegal. She loves reading, playing board games, and the occasional binge watching.

Kingdom of the Devil: The Vagueness of Arkansas’s Best Interest Standards
Presented by Casey Miller
Faculty Sponsor: Dr. Lisa Norris

Legislative and Judicial systems have set the standard for determining child custody by evaluating what is in “the best interest of the children.” However Arkansas courts are split in regard to what factors are determinative for meeting the best interest standard. This article will compare and discuss the history and the current factors the courts use in determining what is the best interest of the child; and how the Arkansas Legislature can better define exactly what factors judges should use in determining the best interest standard. This article will show how courts faced with similar circumstances frequently arrive at different best interest determinations. The courts use the same instructions and Statutes, yet similar cases result in different interpretations of what is, “the best interest of the child.” The vagueness of Arkansas’s Statutes pertaining to the matter result in arbitrary judgments. The Arkansas Legislature should clarify the exact factors for the courts to weigh when determining “the best interest of the child,” including which home will better enrich the child’s life in the areas of education, physical and mental development, stability, and security.

Casey Miller is a 32-year-old first-generation college student enrolled in the legal studies program. She has been on the dean’s honor roll every semester since her enrollment. She is also a mother of three and a wife of 14 years. After graduation Casey hopes to get a job as a paralegal and continue her education in the legal field.
Run and Tweet That! The First Amendment and the Future of Online Activism  
Presented by Alexandria McLendon  
Faculty Sponsor: Dr. Lisa Norris

Since the days of the Vietnam War when student activism really hit its prime, a student’s First Amendment rights - specifically his/her right to protest - have been questioned both publicly and in court. The U.S. Supreme Court has made clear students “do not shed their constitutional rights when they walk through the schoolhouse gate,” but over time legal limits have been placed on how those rights apply to students. As technology has advanced, the courts have left a gap regarding what rights students have to voice their opinions online. Online speech is collectively treated the same way as general speech by the law, but it is no secret that schools are monitoring student’s online activity. So how far is too far when a student is discussing or protesting an issue at their school? What is protected and what is not? This presentation will aim to bridge the gaps in the law by discovering the precedents on student activism as well as showing that public schools should not be able to reach into the private homes of its students and limit their ability to express themselves.

Alexandria McLendon is a 27-year-old student enrolled in the legal studies program at UAFS. She is a mother of two and a soon-to-be wife. She plans to finish her degree and move to the Tulsa, Okla., area with her family.

Dazed and Confused: Life After Marijuana Legalization  
Presented by Shelia Posey  
Faculty Sponsor: Dr. Lisa Norris

Retroactive clemency should go hand-in-hand with legalization of marijuana since the government now profits from the same acts and minority offenders have been disproportionately affected by marijuana criminalization. Marijuana offenders in the past have suffered high penalty incarcerations, which includes a felony charge creating almost an impossible future. Many states have now legalized marijuana for both medical and recreational use. Retroactive clemency in exchange for proactive legalization would right many racial wrongs, allowing felony offenders an opportunity for the possibility of a normal future and also significantly reduce prison over-crowding. New York, Maine, California, Vermont, Colorado, Alaska, Oklahoma and Arkansas are among the many states that have legalized marijuana, some medically, some recreational, some both; creating a question of redress for marijuana offenders. Consenting adult marijuana consumption is often a victimless crime, where there is no apparent pain or injury to others. Additionally, the government’s $55 Billion profit from marijuana in 2017 is at odds with the continued incarceration of prior offenders. Presently, legalization of marijuana has been initiated by the states. I propose that it become federally initiated with release contingencies for any offender that has met certain standards and requirements.

Shelia R. Posey is a 56-year-old student at UAFS. Shelia is enrolled in legal studies with anticipation of a legal studies degree in the spring of 2020. Shelia is the mother of three children and 12 grandchildren. She has been employed by J.C. Penney Co. for 15 years, but is in the process of spending her final years in some area of law, as she has a desire to help her community.
Room 2
Presentations in Legal Studies and Economics
Health Science 121

2:00  Marguerite Ndi Mefoe
2:30  David Roth
3:00  Group Presentation: Cindy Chen, Skylar Smith
The H4 Visa: An Antiquity and Insidious Patriarchy Within the U.S. Immigration System
Presented by Marguerite Ndi Mefoe
Faculty Sponsor: Dr. Lisa Norris

The United State immigration system comprises a variety of visas, among which is the Dependent H4 Visa. The requirements of the H4 Visa are constitutional on their face, but unconstitutional as applied, because they violate the principle of Equal Protection through numerous restrictions imposed upon its holders such as the interdiction to work and interdiction to open a bank account. Because most H4 visa holders are women, it disproportionately affects women and their rights. This presentation will offer few suggestions on how to align the Dependent H4 Visa with the US Constitution. A Good and Fair Treatment Clause of the Dependent H4 visa holder by her Principal H1B should be included in the principal's work contract as a condition for him to keep his job in the US. Unpaid temporary professional trainings for high skilled H4 visa holders to avoid the long gap inside their resume, should also be put in place to keep them competitive in the market force in case their principals were granted permanent residence.

Marguerite Ndi Mefoe is a 35-year-old mother of three children from Cameroon in Central Africa. She is pursuing an associate degree in legal studies with the ultimate goal of becoming an international attorney. She is a member of the National Society of Leadership and Success, Sigma Alpha Pi.

Commuting Workers and Transportation Modes in the United States
Presented by David Roth
Faculty Sponsor: Dr. Bun Song Lee

Observing how people participate in society and the way in which they move in the United States is very important in order to better understand America’s infrastructure and logistics. This study will examine the ways in which people commute to work, and the factors that play a role. The data reported comes from the 2000 US Census and the 2010 US Census (IPUMS data). The data was run through the International Business Machines (IBM) Statistical Package for the Social Sciences (SPSS). This research will see how certain factors such as metropolitan area, race, sex, and marital status affect one’s mode of travel, and examine the trends that have occurred in that time. Results were collected from 283 metropolitan areas in the United States. Research analyzed the information on 3.3 million people in 2000 and 1.3 million people in 2010 who were employed. The focus will be primarily on bus commuters, subway commuters, bicycle commuters, and walking commuters.

David Roth is a senior majoring in business administration. He seeks to use the knowledge and experience from this major to pursue a career in entrepreneurship as well as architecture. This is his first time doing a research study such as this, and he thinks it has been a great experience and will substantially help him later in life.
The Effect of Immigrant Nurses on Labor Market of Native-Born Nurses
Presented by Cindy Chen and Skylar Smith
Faculty Sponsor: Dr. Bun Song Lee

In the past there has been severe nursing shortage in the United States. According to Department of Health and Human Services, the shortage will remain for many years. The Bureau of Health Professionals had projected a shortage of registered nurses over the next 15 years, and in 2015 there would be a 20 percent shortage. The government has eased immigration restrictions on foreign-trained nurses to try to address these shortages.

The influx of foreign nurses is supposed to alleviate the shortage, but they could possibly discourage native-born nurse employments. This research will analyze the effect of immigrant nurses from Asia on the labor market of native-born nurses by utilizing the 2000 and 2010 U.S census data. The International Business Machines (IBM) Statistical Package for the Social Sciences (SPSS) transformed the data into information that is relevant to the research. This program is capable of categorizing data into specific subsections like the number of immigrant nurses in each state or metropolitan area by races. These subdivisions from 2000 and 2010 allows comparison of data that gives insight into the effect of immigration on the native-born labor market for nurses in that decade.

Cindy Chen is currently in her third year at UAFS, but is graduating in May 2019. She is a part of the honors program, Rotaract, and the Student Leadership Council. Her major is international business.

Skylar Smith is a third-year international business and marketing major in my 3rd year at UAFS. He is a member of the Student Leadership Council.
Room 3

Presentations in Psychology

Health Science 124

2:00  Sacha Yedrysek
2:30  Madeline Thornton
3:00  Group Presentation: Sandy Atkins, Ashley McElroy
3:30  Group Presentation: Brandy Herring, Linda Ritter
Our Third Skin: Practical Implications of Personifying Buildings
Presented by Sacha Yedrysek
Faculty Sponsor: Cody Holt

Myriad cultures around the world highly prize certain types of architecture and interior design. Orthographic harmony in an edifice may be globally considered a pleasant setting because of a global tendency to personify one's home, which, in some cases, may be directly linked with a reasonably uncommon psychiatric condition—one you may never realize you have. This study inspect a theory that specific physical forms and arrangements could yield genuine but psychosomatic mental benefits for appropriate psychiatric patients; unorthodox methods may be the most effective when approaching unorthodox disorders, such as synesthesia. Research is sparse in this field and, therefore, is gleaned from previous studies and the presenter's personal experience.

Sacha Yedrysek is a post-baccalaureate student from Clarksville. He began his studies at UAFS in 2013 with a bachelor’s degree in theatre and has now returned for an associate degree in architectural computer-aided design. His ultimate goal is to act while designing theatrical sets, but his current pursuit is to finish his degree and become an Arkansas home inspector. His free time is filled with art, music, psychosocial research, and—by default—his cat.

Fetal Alcohol Spectrum Disorders - Community Awareness in Relation to Personal Variables
Presented by Madeline Thornton
Faculty Sponsor: Dr. Nicha Otero

Fetal Alcohol Spectrum Disorder, while remaining underdiagnosed, is the most prevalent neurodevelopmental disorder, at 7.7 per 1000 live births. (Symons et. al., 2018) Public health awareness initiatives designed to distribute information regarding the physical and behavioral manifestations, as well as dictate the safe alcohol thresholds before and during pregnancy, have been shown to be effective in reducing prevalence of first trimester consumption by 12 percent, and second trimester consumption by 72 percent. (Onoye and Thompson, 2017). The purpose of our study was to determine the correlation between drinking habits, demographic variables and knowledge of fetal alcohol spectrum disorder (FASD). A survey was used to gather demographics, drinking habits, and included a series of symptoms and photos, from which participants were asked to identify those synonymous with FASD. Preliminary findings suggests that correct identification of core characteristics—including low body weight, small cranial size, hyperactivity, delayed speech onset, and intellectual disability—were somewhat consistent, but correct identification of secondary characteristics and photos presented was uncommon and infrequent. The distribution of symptom identifications were close in number of positive responses, suggesting answers were selected at random, or nearly all answers (correct and incorrect) were selected. While this shows a lack of knowledge of FASD and its symptoms, these findings warrant further exploration into demographic correlations posing higher risk of inability to identify Fetal Alcohol Spectrum Disorder by sight or symptom profile.

Madeline Thornton is a Myles Friedman Honors Program scholar and senior psychology student whose research is predominantly concerned with animal-assisted therapy as a tool for mitigating emotional duress. She is also a competitive runner, triathlete, and pole vaulter and enjoys spending her free time with her pug (who is her inspiration for animal-assisted therapy research) and her family.
Cultural Differences in Stress, Anxiety, and Coping Strategies in College Students
Presented by Sandy Atkins and Ashley McElroy
Faculty Sponsor: Dr. Nicha Otero

Health can be viewed as a cultural construct because culture shapes and frames how we see and understand health. In particular, studies have found cultural differences in stress, anxiety and coping strategies among college students. For example, while Misra and Castillo (2004) found cultural differences between American-born and International-born College students in their behavioral reactions to stress, Brougham et al. (2009) found sex differences in the same constructs. What is more, Crockett et al. (2007) found that mediating factors, such as active coping and peer support, buffered the effects of high acculturative stress among Mexican American college students. In our current study, a survey was used to assess stress, anxiety, and coping strategies to determine cultural differences among college students at the University of Arkansas-Fort Smith. Preliminary results show that while the majority of students experience academic, personal, home, and financial stress frequently, it appears that more women than men, experience academic stress more often. Out of the 94 participants, 68 individuals said they deal with academic stress and 46 of the 68 were women.

Sandy Atkins is a 22-year-old biracial Mexican-Caucasian female who was born in Torrance, Calif. She is a first-generation student and the oldest child to Maria and Robert Atkins. Sandy arrived in Arkansas at an early age and was able to attend the Fort Smith public school system throughout her early academic career at Trusty Elementary, Kimmons Junior High, and lastly graduating in 2014 from Southside High School. She also completed the concurrent program offered by the Western Arkansas Technical Center at UAFS through her high school education in the pharmacy technician program. She is currently enrolled in the Bachelor of General Studies program at UAFS as a senior. She plans to be in the graduating class of 2019 and will pursue a graduate degree in the future. When Sandy is able to, she enjoys hiking and spending time with her family.

Ashley McElroy is a senior in her final semester at UAFS. She is a psychology major with a Spanish minor. She will graduate with a Bachelor of Arts in the spring of 2019. Ashley plans to attend graduate school in the near future, and she will eventually earn her doctorate in psychology.
Culture is a pattern of ideas, behaviors, or customs shared by a group of people or society. It is shaped by many things such as race, ethnicity, nationality, and heritage, and it affects the way people view health, such as a person's decision to seek healthcare. Our literature shows that prompt and appropriate health-seeking behavior among young people is a public health priority worldwide (Montagni, 2019). One main factor for students delaying healthcare is the student's indecision to seek healthcare or to self-diagnose and treat oneself according to their own knowledge. In our current study, a survey is used to identify how culture affects a person's awareness, knowledge of services provided, and approaches to healthcare among the UAFS student community. One study found sex differences where females are more likely to get help from healthcare providers than males (Green, 2006). Another study found that ethnic identities that were not well represented at a local community level showed low participation in local community networks. This in turn placed concern for health disparities among ethnic minority groups (Campbell and McLean, 2002). Thus, it is expected that the results of our study would also show similar cultural differences in awareness, knowledge, and approaches to healthcare.

Brandy Herring is a junior majoring in nursing and minoring psychology. She is married and expecting her first son to arrive in early July. Brandy plans to graduate in May of 2020 with a Bachelor of Science in Nursing. She is considering continuing her psychology degree to get a bachelor's in psychology by the end of 2020. She hopes to continue her education by going to graduate school to pursue a master's degree in nursing after working in the field for a few years. She has not yet decided on a specialty, but is currently interested in labor and delivery nursing or CRNA (certified registered nurse anesthetist).

Linda Ritter is a psychology major in her senior year, minoring in sociology. She is interested in pursuing a master’s in social work and plans to attend the University of Arkansas, Fayetteville this fall. Linda developed her interest in psychology while working as a nurse in Fort Smith. Her research in the past included projects on immigration and Alzheimer’s disease. Her future projects include fear and phobias.
Room 4
Presentations in Media Communication
Library 122
2:00  Cheyanna Stricker
2:30  Ethan Benjamin
3:00  Mikalyn Reif
3:30  Mallory Gates
In the year 1918, after four years of bloodshed, World War I finally came to an end. Germany was facing isolation not just from other countries, but from within its own government. Just two years prior to the end of the war, foreign films were banned and thus the German Expressionism movement was born. German Expressionism was a film style that focused on themes of insanity, death, fear, and the other very real experiences that the people of Germany were facing between the years of 1914 and 1918. This presentation aims to show that although German Expressionism faded, the legacy of the style is still being carried on in contemporary Hollywood through the works of Tim Burton. German Expressionism’s most influential characteristics included the use of exaggerated visual styles, shadowed lighting, and fantastical characters. The goal of this presentation is to analyze Burton’s use of these characteristics in his projects in order to enhance and highlight the narration that he is trying to tell.

Cheyanna Stricker is a 20-year-old senior at UAFS from Elkins, Ark. She is a media communication major with a minor in theater and will be graduating in December of 2019. She has acted in four productions at UAFS over the last two years and has been the editor of the Lion’s Chronicle for the past year. With her background in writing and theater, she hopes to find a career where she can combine both of her passions, hopefully through working as a communications manager for a theater company. In her spare time she likes to travel with her loved ones and support the Kansas City Chiefs.

Film noir is a term that literally translates to black or dark cinema. The term is used to describe American films from the early-1940s to late-1950s, which are known for having cynical worldviews and dark settings. While “neo-noir” films of later decades would seek to emulate the classic feeling of film noir with the hard-boiled detectives and femme fatales, the style and themes of film noir would also find a place in the genre of science fiction. Film noir’s cynical attitudes and dark themes lend themselves well to sci-fi films with similar ideologies. The epitome of such films with film noir influences is the 1982 film Blade Runner and its sequel, Blade Runner: 2049. The philosophy of nihilism found in most film noirs is superbly expressed in the science fiction world set in a dystopian Los Angeles where despairing androids seek desperately to be human and cling to the feeble lives forced on them by their creators. Dark cinema is at its darkest when you examine the dark side of cyberpunk.

Ethan Benjamin is a sophomore at UAFS and plans on majoring in media communication and minoring in creative writing. He chose this major and minor because he has a passion to create stories and explore their meaning. Upon graduation he hopes to enter the film industry and create works that will entertain people all around the world. His dream is to write and produce his own screenplay. In his free time he works with his church and campus ministry and helps them in producing videos. He enjoys writing, watching movies, and spending time with his friends and family.
French New Wave, the Creation of the Auteur, and Wes Anderson
Presented by Mikalyn Reif
Faculty Sponsor: Dr. JaeYoon Park

French New Wave Cinema (Nouvelle Vague) was a film movement that began in early-1950s and lasted until the mid-1960s. It found international acclaim during its run, and it is still considered to be one of the most influential and inventive film movements of all time. The French New Wave introduced many new storytelling techniques to the world. One of its major byproducts was the creation of the auteur. An auteur is a director – who often has also written the screenplays for their films – that makes each of their films in a distinct fashion as a form of personal expression. The unique aspects of auteurs are often found in their films’ overall aesthetics or themes. Wes Anderson is a modern American auteur with one of the most unique and recognizable filmmaking styles. Many of his films have many of the same characteristics of French New Wave Films. This discussion will include an abridged history of the French New Wave, its characteristics, French New Wave auteurs, and draw comparisons of several of Wes Anderson films to French New Wave Films created by other auteurs.

Mikalyn Reif is a 22-year-old from Poteau, Okla. She will be graduating in May 2019 with a Bachelor of Arts in media communication. This area of study combined with a minor in theatre has given her great insight and made her realize that she has a mind for the analysis of pop culture artifacts and dramaturgy. This will help her in her future pursuits of an Master of Fine Arts in acting as well as a career in the performing arts.

Opening the Internet: Network Neutrality and Spiral of Silence Theory
Presented by Mallory Gates
Faculty Sponsor: Dr. Susan Simkowski

Network neutrality, or the concept of an open Internet existence where Internet service providers cannot favor certain types of content in relation to delivery speed or pricing when providing said content to consumers, is an ongoing debate; its status has the ability to impact Internet users and their media consumption. This study analyzes not only people’s awareness of net neutrality given its relevance to consumers who pay for or use Internet service, but also if, when discussing network neutrality as a conversational topic with each other, people prove the spiral of silence theory to be correct, which states that fear of isolation causes people in the minority to either remain silent about a topic or agree with the majority so as to avoid feeling excluded.

Mallory Gates is a 2016 graduate of the Arkansas School for Mathematics, Sciences, and the Arts and is a junior media communication major with a minor in political science. She aspires to work in media law.
Room 5
Presentations in Engineering, Electronics Technology, and Electronics
Library 203

2:00 Abel Medina

2:30 Cecil Montemayor IV

3:00 Group Presentation: Kolby Simpson, Val Bartlett, Michael Gomez, Peter Lieu

3:30 Group Presentation: Luke McDonald, Zack Goodlin, Carter Freeze
Mars Rover Motor Control Using Back Electromotive Force
Presented by Abel Medina
Faculty Sponsor: Dr. Kevin Lewelling

The UAFS Mars rover motor drive that is currently being used is capable of speed controlling a 1 kW, brushless DC (BLDC) motor shown in Figures 1a and 1b below. This drive uses Hall sensors to detect the present motor phase which triggers the microprocessor to advance to the next phase. This has at times introduced Hall signal errors since noise is common in a motor drive application. Noise filtration has helped limit Hall signal errors but not eliminate them. The proposed solution is to add Back Electromagnetic Force (BEMF) detection to the drive to eliminate these errors. This is sometimes referred to as a sensorless motor drive. This will also add the flexibility to increase drive efficiency by modifying the speed controlling program thus making the rover more attractive for use in space. This presentation will highlight progress that has been made in the last six months on this project.

Abel Medina is currently interning at Rheem in Fort Smith. He will complete his Bachelor of Science in electrical engineering in May 2019. His current plans are to continue working on motor drives or attend graduate school.

EZ POD Automated Accounting Software
Presented by Cecil Montemayor IV
Faculty Sponsor: Dr. Kiyun Han

Increasing productivity is the best way to create value in a business. In logistics the efficiency of a process and how it adds to the whole productivity of the company are the standard by which potential customers and relevant competition measure the merit of their services. Finding an unnecessarily time consuming however very critical to cash flow process was the goal and the outcome was the EZ-POD software. Serving as a database that can manage requesting delinquent accounting documents or other programmed procedures, cutting the average task from several hours to under 30 minutes. Its versatility makes it attractive as a one size fits all program that is cost affordable and comparatively simplistic to its currently available counterparts. The ability for the user to easily manage creating their own features is key. Additionally, the ability to expand the program from a small operation to a much larger one with a high standard of reliability is fundamental to the software’s design.

Cecil Montemayor is a 17-year-old senior at The Future School of Fort Smith and student in the WATC program. He enjoys programming and working on small electronics in his free time, and when he is not at home, you can likely find him working on a project at his internship, the Propak Corporation, located in downtown Fort Smith. In the future it is his goal to serve his country through military service and return after his military career to work for the FBI.
**Guitar Zero**  
Presented by Kolby Simpson, Val Bartlett, Michael Gomez, and Peter Lieu  
Faculty Sponsor: Dr. Kiyun Han

The objective of this project is repurposing a guitar hero controller into a sound synthesizer. The shell of a guitar hero controller is being used for the pushbutton inputs. The Arduino inputs are being soldered to the guitar hero pushbuttons inside. The Arduino mega has been programmed to emit certain frequencies which mimic actual notes. The notes that have been chosen to be mimicked are C, D, F, G, and A. These notes can either be changed to sharp or regular with the buckler that is on the actual guitar itself. By strumming up on the buckler, the note will be sharp, and by strumming down it will produce a regular note. The Arduino mega is being powered by a 9 volt battery. An LCD screen will be attached to the guitar displaying “Guitar Zero.” An amplifier is being used in the circuit to help amplify the signal to produce a louder and clearer note. The amplifier is connected in series with a potentiometer used for volume control and a speaker.

*Kolby Simpson was born in 1996 in Fort Smith. He went to Southside High School and is currently majoring in electrical engineering technology.*

*Val Bartlett was born in 1977 in Georgia and is majoring in electrical engineering technology.*

*Michael Gomez was born May 4, 1994, and is majoring in electrical engineering technology.*

*Peter Lieu was born on Nov. 23, 1994, in Fort Smith and is Vietnamese-American.*
The Design and Use Case of a Thermal-Controlled Outlet
Presented by Luke McDonald, Zack Goodlin, and Carter Freeze
Faculty Sponsor: Dr. Kiyun Han

The objective of this project was to design and create a thermally controlled outlet using a Raspberry Pi Zero W, relay, and a thermal sensor. The outlet has the ability to function wirelessly on a Windows or Linux machine on the same network as the Raspberry Pi. This was achieved using networking in Python code. We also incorporated threading so that the program could continually update with new information about the goal temperature and/or the current temperature. The temperature sensor was rated for plus or minus 0.5 degrees Celsius. All of the temperature selections were displayed in a Graphical User Interface (GUI) on the Windows or Linux system sending information to the Raspberry Pi. If the desired temperature was not one of the options in GUI, there was a separate menu that allowed the user to input a new goal temperature for the outlet to achieve. The user could see the current and goal temperatures update when that information was sent. The relay was rated for a range of ten to forty milliamperes. A transistor that reversed the operation logic of the relay was used to achieve the necessary amperes.

Luke McDonald is a freshman in the electronic technology associate degree program. He is from the small town of Hackett, where he was home schooled through the 12th grade. He currently is working as the broadcast audio technician for First Baptist Fort Smith. After graduation Luke plans to pursue a bachelor's degree in film and work in sports broadcasting. He enjoys photography, video games, and volunteering in the children’s ministry at his local church.

Zack Goodlin is a student at the UAFS pursuing an associate degree in electronics technology. His hobbies are skateboarding and working with stereo equipment. He also enjoys building and working on electronics and robotics projects. He desires to use the skills he has acquired through the Western Arkansas Technical Center at UAFS as a maintenance technician in the future and flip houses on the side.

Carter Freeze is a sophomore in the electronic technology associate degree program. He attended UAFS through the Western Arkansas Technical Center for his last two years in high school, where he discovered his passion for electronics. His hobbies include PC building, robotics, and electronics repair.
Room 6
Presentations in Computer Science, Animation, and Art History
Library 206

2:00 Group Presentation: Cesar Cuevas, Shaylon Hutchins, Austin Edwards

2:30 Emilee Hatwig

3:00 Hayla May
Sentiment Analysis of Social Networking Data Classifiers
Presented by Cesar Cuevas, Shaylon Hutchins, and Austin Edwards
Faculty Sponsors: Andrew Mackey and Brittany Bright

With an increasing desire by the general public to share opinions, reviews, and experiences via social media platforms and the web, extracting meaning from text to find value is a challenging problem. Advancements in the fields of machine learning and natural language processing have provided new ways to process, analyze, categorize, and extract meaning from text. One notable example of this is through the work in sentiment analysis, which involves classifying text documents based on the opinion expressed being a set of predefined emotions. The goal of this work is to propose a machine learning model that will automate the classification of sentiment for social networking data.

Cesar Cuevas is a senior in the Computer and Information Sciences Department. His academic interests are data analytics, machine learning, natural language processing, and big data. He is also an active member of the Computer and Information Sciences Natural Language Processing research group.

Shaylon Hutchins is a senior in the Computer and Information Sciences Department. His academic interests are machine learning, big data, and algorithm design.

Austin Edwards is a senior in the Computer and Information Sciences Department. His academic interests are data analytics, database management systems, natural language processing, and machine learning.
What is an Animator?
Presented by Emilee Hatwig
Faculty Sponsor: Dr. Argie Nichols

Research will be a nonfiction documentary detailing the work of animation studies, including classwork and degree expectations, as well as interviews with animation students. Interviews shall be conducted in order to discover the student’s interest in the field, what brought them to animation as a career, and what they plan to do upon graduation. The documentary will also show a few examples as to the coursework required in order to become an animator, and the amount of time, energy and talent necessary in order to pursue animation. Statistics will be given showing job availability upon graduating, as well as where a majority of animation students go to build a career and what sort of job they are employed in, such as a modeling, rigging, lighting, etc. This documentary is meant to detail what an animator learns, does, and is expected to accomplish in their field, therefore leaving the viewer with no confusion as to what the degree entails and eliminating the preconceived notion that animation and graphic design are one and the same. The intent is to inform viewers and give the animators a voice as to who they are, what they do, and what they hope to do, while portraying an emotional vulnerability that comes with baring one’s hopes and dreams.

Emilee Hatwig is a 22-year-old Alma native pursuing her Bachelor of Science in animation technology at UAFS. She has an associate degree in digital design and is set to graduate with her bachelor’s degree this May. She is a member of the Myles Friedman Honors Program through which she has been able to travel to Texas and Canada while studying honors-level courses. As an avid storyteller, Emilee enjoys producing short films, implementing her knowledge of theatre from high school and her film editing courses from college. She hopes to pursue a career in film once she graduates, either as an animator or as a media editor, and is considering getting a master’s degree in film to one day become a director. Beyond filming Emilee also enjoys drawing, listening to music, and consuming copious amounts of coffee in her free time.

Medieval Cathedrals and Flying Buttresses
Presented by Hayla May
Faculty Sponsor: Dr. Mary Shepard

In this paper I will discuss the use of buttressing in medieval cathedrals, using the early 13th century Cathedral of Chartres as a case study. The structural significance of buttressing is well understood. This essay will address how flying buttresses grew out of a shift in desire for cathedrals to have interdependent, coalescing features that aided in amplifying the authority and transcendence of a space. Various approaches, coming from architectural, engineering, and historical perspectives, highlight the roots from which flying buttresses sprung in the intellectual fervor of the Gothic era. I wish to use the more holistic approach of art historians like William W. Clark, to explore the stylistic need to amalgamate architectural components to suit the mindset of builders at the time. Reviewing these approaches also brings to light that buttressing contributed to the trope of a Gothic Cathedral as a “Heavenly Jerusalem.”

Hayla May is a senior studio art major with a minor in art history. As well as working her way through college, she attends classes full time and pursues extracurricular activities as much as time will allow. She values hard work, appreciates good tea, and above all loves to explore the facets of art and its context within history. She has followed her studies all the way to France and plans to follow them further. Moreover, she is pursuing a master’s in art history and intends to teach with the same patience and wisdom as her professors.
Room 7
Presentations in Computer Science
Library 209
2:00  Luke Hinton
2:30  Seth Porter
3:00  Timothy Zickgraf
3:30  Group Presentation: Fernando Estrada, Elijah Gingerich
Sentiment Analysis of Text Through Statistical Techniques
Presented by Luke Hinton
Faculty Sponsors: Israel Cuevas and Andrew Mackey

Text is a ubiquitous resource where traces of it can be found in email, documents, social networks, text messaging, and in a variety of other services. Unlike direct conversations in which individuals can deduce sentiment, emotions, and other cues that facilitate communication, text lacks this capability as a user’s intention is not directly visible. The goal of this research is to present an approach using statistical methods of classification to evaluate the relationships between positive, negative and neutral text documents to provide a way to automatically analyze the sentiment of text.

Luke Hinton is a student in the Computer and Information Sciences Department and attends UAFS through the Western Arkansas Technical Center. He is also a senior at Southside High School. Through his program of studies at UAFS, he developed research interests in the areas of algorithm design, natural language processing, and big data. He intends to continue his research in these areas as a full-time student at UAFS.

Improving Cybersecurity Through the Use of Blockchain Technology
Presented by Seth Porter
Faculty Sponsors: Israel Cuevas and Andrew Mackey

Cybersecurity is at the forefront of many organizational strategies due to the upward trend in security breaches and privacy concerns. Many innovations have been put forward by industry and academic research to curtail both internal and external threats that companies face. Blockchain is a technology that exists in the form of a decentralized and distributed ledger to provide security, anonymity, and data integrity to its users. It utilizes a collection of algorithms to provide cryptography and consensus to restore trust within systems. The goal of this work is to provide an in-depth analysis of how the technology works and summarize existing work on this topic.

Seth Porter is a student in the Computer and Information Sciences Department and attends UAFS through the Western Arkansas Technical Center. He is also a senior at Alma High School. Through his program of studies at UAFS, he developed research interests in the areas of algorithm design, cybersecurity, and blockchain. He intends to continue his research in these areas as a full-time student at UAFS.
Applying Machine Learning to Automate Cluster Formations
Presented by Timothy Zickgraf
Faculty Sponsors: Israel Cuevas and Andrew Mackey

Machine learning algorithms allow us to ascertain hidden insights within data without explicitly directing a system to find them. A specific subset of machine learning algorithms, known as unsupervised algorithms, allow us to establish relationships between closely-related data without having prior knowledge of targets or responses. Unsupervised algorithms have a variety of applications, including customer behavioral analysis, anomaly detection, health care monitoring, and categorization techniques. This research will present a machine learning algorithm that leverages unsupervised learning techniques to establish relationships of closely-related data from multidimensional data.

Timothy Zickgraf is a student within the Computer and Information Sciences Department and attends UAFS through the Western Arkansas Technical Center. He is also a senior at Van Buren High School. Through his program of studies at UAFS, he developed research interests in the areas of algorithm design, machine learning, and big data. He intends to continue his research in these areas as a full-time student at UAFS.

Image Recognition Using Neural Network Classifiers
Presented by Fernando Estrada and Elijah Gingerich
Faculty Sponsors: Israel Cuevas and Andrew Mackey

Imaging data is being generated at an accelerated rate due to the advent of portable electronic devices equipped with advanced digital cameras and sensors. While the past decade has experienced an increase in the number of digital images produced, many organizations struggle with the processing of images given the complexity of this type of data and volume that is readily available. Many advancements in the field of computer science have been made to facilitate the processing of images through research. The goal of this work is to present an approach that utilizes neural networks to automatically classify images into a set of distinct categories.

Fernando Estrada is a student within the Computer and Information Sciences Department and attends UAFS through the Western Arkansas Technical Center. He is also a senior at Southside High School. Through his program of studies at UAFS, he developed research interests in the areas of algorithm design, machine learning, imaging processing, and big data. He intends to continue his research in these areas as a full-time student at UAFS.

Elijah Gingerich is a student within the Computer and Information Sciences department and attends UAFS through the Western Arkansas Technical Center. He is also a senior at The Future School of Fort Smith. Through his program of studies at UAFS, he developed research interests in the areas of algorithm design, machine learning, process automation, and big data. He intends to continue his research in these areas as a full-time student at UAFS.
Room 8
Presentations in Education
Health Science 222

2:00  Blake Karr
2:30  Elisabeth Maxwell
3:00  Molly Musick
3:30  Cassidy Ford
Promoting Reading in a Middle Level Classroom: Strategies, Benefits, and Conflicts
Presented by Blake Karr
Faculty Sponsor: Dr. Lois Yocum

This paper examines the strategies, benefits, and challenges involved in promoting reading in a middle level (4-8) classroom. Today, electronics consume most people’s lives, and they do not show as much interest in reading books. Nevertheless, they know that it is important to inspire a love for reading at an early age and promote reading outside of the classroom. Reading skills are necessary in developing a literate society. They can shape the personalities of individuals and help them develop thinking skills. In this paper a future middle school teacher researches benefits and conflicts that accompany promoting reading in addition to suggesting strategies to implement. Specific strategies that will be researched include: organizing book clubs, choosing “mystery books,” giving book talks, and modeling life-long reading habits. These activities encourage students to want to read. One limitation of the study is having too little time in the classroom to experiment with different literacy strategies because general education teachers must follow pacing guides to keep their units of instruction aligned with district curriculum calendars. A study of interests, motivators, and achievement levels of a group of students during the next semester will measure the overall success of planning and implementing diverse literacy-based instructional strategies.

Blake Karr is from Sallisaw, Okla., and is majoring in middle level education with an emphasis on language arts and science. She has always had a passion for reading, and that is what inspired her to research ways to promote it in and out of the classroom. She loves education and wants to strive to be the best educator she can be.
Effects of Providing Written Instructions on Student Analysis of Word Problems
Presented by Elisabeth Maxwell
Faculty Sponsor: Dr. Lois Yocum

Students located at an elementary school in the mid-southern region of the United States are currently struggling with reading and analyzing word problems. Their ability to read, analyze and answer word problems is critical to their academic success. To improve their reading and problem solving skills, these students need written procedures and explicit instruction to be able to learn how to read a word problem. Potential interventions in math classrooms include displaying a large copy of written steps for word problem analysis at the front of the classroom, providing each student with a copy of this document, modeling problem-solving steps, allocating time for answering questions during direct instruction and during guided practice. Assessment data gathered from assignments and quizzes that contain word problems may be used to determine the impact on student learning. Eventually, students will internalize these procedures for analyzing word problems and no longer need written instructions as reminders. This will benefit the students in all future grades. Limitations of the study include being unable to reinforce this instruction or provide the necessary practice for students in a sixty-hour field placement. Future research may explore other ways that written step-by-step instructions related to procedures may benefit student learning.

Elisabeth Maxwell is a junior middle childhood education major with an emphasis in mathematics and science at UAFS. Her inspiration for this research began when she started her observations in a local school district and noticed her students struggling. As a future educator, she has many goals, including earning a Master of Education in counseling. For now she plans to graduate and begin her teaching career.
Positive Teacher Communication, High Expectations, and Student Motivation
Presented by Molly Musick
Faculty Sponsor: Dr. Lois Yocum

This research explores communication and expectations in schools, specifically among teachers and students. It focuses on the aspects of positive teacher to student communication and high expectations leading to an increase in the student motivation of at-risk students. This overview examines teacher and student communications and their effect on educational outcomes. The research concludes with suggestions for how to positively communicate high expectations successfully with students. Clear explanations and directions; specific, short-term, and achievable objectives; and the celebration of successes all play important roles in increasing student motivation in the classroom. The purpose of this research is to determine if positive teacher communication and high expectations will increase student motivation in a middle grades classroom. Interventions involved weeks focused on positive communication with the students and setting high expectations for and with them. Improvements in both attendance and test scores served as evidence of an increase in students’ motivation; however, further research should be considered to monitor at risk students’ self-directed motivation after they leave this classroom.

Molly Musick is a junior in the UAFS School of Education and a member of the Myles Friedman Honors Program, Collegiate Middle Level Association, of which she serves as vice president, and Kappa Delta Pi Honor Society. Molly is currently pursuing a degree in middle level education with an emphasis on mathematics and language arts. As a future educator, she has many goals, including earning a Master of Education to qualify to be a Library Media and Information Specialist. During her free time, she travels the state as the Arkansas State Fair Rodeo Queen representative, and she also volunteers in her community.

The Effect of Freedom of Choice on Reading Focus, Interest, and Comprehension Skills
Presented by Cassidy Ford
Faculty Sponsor: Dr. Lois Yocum

This paper explores the relationship between students’ focus on reading during independent reading time and their interest in the material they read. The emphasis on every student reading on grade level has stripped many joys of reading for some students as they focus on reading decodable books. Encouraging students to choose reading material that sparks their interest after participating in an in-class “book tasting” will improve their focus on the reading task and their fluency and reading comprehension skills. Prior to the planned and implemented interventions, students complete a simple survey that provides information about their interests. They then read self-selected books and contribute to discussions about the content with their peers who are reading the same books while their teacher monitors time on task and reading fluency and comprehension. Following group discussions, the teacher conducts a running record assessment to collect tangible data on students’ fluency and comprehension. This process provides insights into not only how well the students comprehend the content of books they have chosen, but also how their reading fluency changes over time. A limitation of this study relates to the time constraint that limits the extent to which student performances can be monitored and analyzed.

Cassidy Ford is a 2016 graduate of Springdale High School. Her favorite times are spent with her husband and daughter. Baking and reading are two of her special interests. She has always been a passionate reader, and her goal in becoming an elementary teacher is to inspire students to find joy in getting lost in good books.
Room 9
Presentations in Education, Health Science, and Nursing
Health Science 223

2:00  Jake Meyers
2:30  Group Presentation: Thao Nguyen, Hannah Payne
3:00  Kallie Dean
The New Zealand Method: A Quality Improvement Project to Reduce Referral Wait Times
Presented by Jake Myers
Faculty Sponsor: Dr. Cheryl Holden

Referral management is detrimental to the patient stream in health care. When patients being referred to a specialist clinic do not have necessary diagnostic testing there can be a delay in treatment. Timeliness of care is one of the main measures of quality care that are now being used to adjust the payments made to providers. A health system in New Zealand has a deeply detailed list of guidelines when referring to the cardiology system. While a single-payer country, some of these guidelines can be applicable in the United States; The New Zealand Method. This report identifies a health system with an opportunity to reduce wait times between referral and first appointment utilizing The New Zealand Method. There is a literature review which delves into referral management today and how it can affect patient satisfaction. This study introduced testing recommendations per diagnosis for when referring to a Cardiovascular and Thoracic Surgery Clinic in an effort to increase access by reducing time between referral and first appointment.

Jake Myers is finishing his master’s degree in health care administration which will be his second degree from UAFS. His first degree was a Bachelor of Business Administration. A lifelong area native, Jake attended school in Fort Smith and Cedarville before attending college. After completing his undergraduate studies, Jake maintained a restaurant in Fort Smith before eventually moving into the oil industry and maintaining a facility in Conway. After returning to Fort Smith, he continued working for the local oil company where he still works part time while completing his degree. This past year Jake sought out an internship at Mercy Health where he has been able to devote part of his time under the executive director of cardiovascular services. His ideal career would be working for Arkansas Children’s in Northwest Arkansas or the Veteran’s Affairs in addition to Mercy. All support a noble cause of caring for the most vulnerable.
Systematic Review of Kangaroo Care
Presented by Thao Nguyen and Hannah Payne
Faculty Sponsors: Dr. Jackie Cavner and Brooke Gray

This paper explores the research surrounding kangaroo care, also known as kangaroo mother care (KMC) or skin to skin contact (SSC). Kangaroo care consists of prolonged skin to skin contact, and usually breastfeeding if applicable, between the newborn and participating parent right after the birth of the newborn. Components of this systematic review involve and detail the benefits of kangaroo care in regards to newborn vital signs, weight gain, analgesic effects, bonding, mortality rates, psychological and behavioral effects, and paternal kangaroo care. Various sources and studies, all published within the last five years, were compiled to complete this systematic review. Several sources in this systematic review give an international perspective of kangaroo care and were used in order to demonstrate the widespread use of this inexpensive, non-pharmacological intervention for newborns post-delivery. Further recommendations for research are also included in this paper. Recommendations were made based on current research results, conflicting research results, or complete lack thereof.

Thao Nguyen is a current Bachelor of Science in Nursing student at UAFS. She is seeking graduation in May 2019. She is also a current member of the Myles Friedman Honors Program. Her interests lie in holistic patient care approaches with emphasis on health prevention and promotion. To combat the current trend of rising health care costs, her focus is on finding interventions that are cost effective. This is the reason behind the research conducted on kangaroo care, a simple intervention implemented by caregivers to ensure positive outcomes for the newborn and the parents. Through thorough collaborative research, the team hopes to deliver evidence-based interventions to promote holistic and cost-effective care for the intended population.

Hannah Payne is a 20-year-old senior nursing student who will graduate in May 2019. During her college career, she has participated in the Myles Friedman Honors Program. While at UAFS she has strived to be the best student possible and achieve the goals she has set for herself. As a future nurse, it is important to her to share the information she has learned to promote the best possible patient outcomes. She values the health and wellbeing of all people. This is why she and her research partner chose to conduct the research on kangaroo care. They have high hopes that their research can promote better outcomes for mothers and newborns.
The Good, the Bad, the Lessons Learned
Presented by Kallie Dean
Faculty Sponsors: Dr. Monica Riley, Dr. Sara Davis, and Dr. Ernest Barnett

This research investigated the impact and effects of participating in a full-time, on-site learning experience in an elementary classroom while completing a pre-service teacher preparation program. The participant in this study served as a long-term substitute in a fourth grade classroom in a local school district that partners with University of Arkansas Fort Smith School of Education. Working with school administration and University of Arkansas Fort Smith School of Education faculty, the participant was part of a pre-service pilot program in preparation for a year-long internship. While serving as a full-time fourth grade classroom teacher, the participant was mentored by university faculty. The mentorship provided regular support and coaching through email, phone conversations, and on-site visits which included modeling of best practices in teaching. Roles of the participant included daily lesson plans, classroom management, differentiation, organizational skills, collaboration among colleagues, administering and tracking student assessments, accommodation/remediation, and daily teacher obligations (duties, clubs meetings, grading, etc.), while implementing strategies and methods learned previously in the teacher preparation program. Information was gathered to test effectiveness of the strategies learned, improve preparation program instruction, and work with University of Arkansas Fort Smith School of Education faculty and local school districts to plan for full implementation of the year-long internship. The research also provided, from the participants and the mentors view, valuable information of benefits for both local school districts, the university, and future participants in the year-long internship experience.

Kallie Dean is a senior elementary education major at UAFS. She has played an active role in the School of Education by serving as former president of Future Educators Association Professionals, member of the Teacher Education Committee, contributing member of Kappa Delta Phi Honor Society, and student representative for the pre-pilot Year-Long Internship Committee. Kallie has had experience observing and collaborating across several grade levels in local school districts. Currently serving as a fourth grade long-term substitute, Kallie is partnering with a local school district for preparation of a year-long internship program with the university. She has a passion for learning, a commitment to education, and believes that each student brings a unique story that needs to be heard. Her opportunities are allowing her to share her experiences with colleagues to help build culture and climate among educators.
Room 10

Presentations in Health Science

Health Science 227

2:00 Group Presentation: Logan Stanhope, Jazmine Dean, Erin Higgins, Savannah Page

2:30 Group Presentation: Macie Adams, Faith Chambers, Alexis Goodnight, Raleigh Selsor

3:00 Group Presentation: Savanna Herbert, Jessica Kirkham, Mallorie Scroggie

3:30 Group Presentation: Karla Saavedra, Maricela Gonzalez, Ashley Manchamee, Saguey Martinez
Pediatric Sleep Apnea

Presented by Logan Stanhope, Jazmine Dean, Erin Higgins, and Savannah Page
Faculty Sponsor: Pam Davidson

Obstructive sleep apnea is characterized by loud snoring, restlessness, and/or a blocked airway which causes breathing to stop and start again. Sleep apnea can be seen in adults as well as children. This collaborative research project outlines pediatric sleep apnea oral manifestations, the association with intellectual disabilities, and how it affects children and their everyday life. Pediatric sleep apnea is commonly misdiagnosed or overlooked. The role of dental professionals is essential in the detection, diagnosis and management of pediatric sleep apnea. Children struggling with sleep apnea generally experience mouth breathing, clenching or grinding, enlarged tonsils or adenoids, and have an increased risk of developing dental caries. Attention Deficit Disorders, Autism, and Down syndrome have been linked with sleep apnea in regards to intensifying behavioral issues such as extreme moods, shortened attention span, and hyperactivity. When a child experiences sleep apnea, their everyday life is affected by poor school performance, impaired growth, and a heightened risk for depressive disorders. First line treatment for pediatric patients is an adenotonsillectomy, followed by weight loss when necessary, medications, or a CPAP machine.

Logan Stanhope will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2014 graduate of Sallisaw (Okla.) High School and plans to enter a community dental setting with the Cherokee Nation.

Jazmine Dean will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2015 graduate of Southside High School and plans to seek employment in a private practice in the River Valley area.

Erin Higgins will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2015 graduate of Glen Rose High School in Malvern and plans to enter the work force as a hygienist in a private practice setting in Central Arkansas.

Savannah Page will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2015 graduate of Broken Arrow (Okla.) High School and plans to enter the work force as a hygienist in a private practice setting.
Salivary Testing: The Gum Connection
Presented by Macie Adams, Faith Chambers, Alexis Goodnight, and Raleigh Selsor
Faculty Sponsor: Pam Davidson

This is a review of existing research about salivary testing for oral and systemic diseases. Saliva contains biological markers for an increasing variety of conditions including but not limited to dental caries, periodontal disease, diabetes mellitus, and cardiovascular disease. Salivary testing is convenient for both the patient and clinician. The procedure is noninvasive and saliva is an easy fluid to collect and manage. Detection of biomarkers is the only form of oral assessment that is predictive in nature. It has the potential to improve clinical management of dental patients. Salivary testing is not widely practiced due to high startup costs and the number of dental professionals who do not consider it a necessity. Salivary testing provides researchers and dental professionals with greater understanding about the etiology and treatment of oral conditions.

Macie Adams will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a graduate of Acorn High School and plans to enter the work force as a hygienist in a private practice setting.

Faith Chambers will graduate in May 2019 with a Bachelor of Science in dental hygiene. She graduated from Muldrow (Okla.) High School with honors in 2015 and plans to work in a private dental practice in the Fort Smith/ Northwest Arkansas area.

Alexis Goodnight will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2014 graduate of Alma High School and plans to pursue a career in the dental public health setting in the Northwest Arkansas area.

Raleigh Selsor will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2015 graduate of Kingston High School and plans to pursue a job in private practice in Northwest Arkansas.
Xerostomia is a prevalent concern in the dental community with new treatments surfacing to combat this issue. Saliva not only serves as lubrication for speech, swallowing, and digestion, but also as protection for the teeth. Many factors can contribute to xerostomia, commonly referred to as dry mouth. The most common contributing factors are head and neck radiation, Sjogren's syndrome, and various medications. Xerostomia increases the risk of caries and other oral tissue infections. Patients may exhibit taste disturbances and speech difficulties as well as dysphagia due to xerostomia. Though there are a variety of treatments currently available, they are limited to palliative and temporary relief in the form of lozenges, gum, and sprays. Many prescription medications that replicate saliva or stimulate salivary flow have negative side effects while longer lasting treatments such as salivary gland transfer and electrical current stimulation are painful or need very specific criteria to work, limiting the number of patients eligible for treatment. In the last few years, more permanent solutions have been studied with progress made towards functional salivary gland regeneration as well as implantation of an artificial salivary gland. These innovations will improve quality of life for patients suffering from xerostomia.

Savanna Herbert will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2015 graduate of Rogers Heritage High School and plans to seek employment in private practice in Northwest Arkansas and pursue a master's degree to advance in her profession.

Jessica Kirkham will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 1996 graduate of Central Valley High School in Washington State and plans to seek employment in a community clinic setting in Newton County.

Mallorie Scroggie will graduate in May 2019 with a Bachelor of Science in dental hygiene. She is a 2015 graduate of Harrison High School and plans to pursue a career in private practice and continue to promote dental health awareness to underserved populations.
Millennials in Dentistry
Presented by Karla Saavedra, Maricela Gonzalez, Ashley Manchamee, and Saguey Martinez
Faculty Sponsor: Pam Davidson

As the world moves forward, change is inevitable. Generational cohorts will impact the healthcare system both as patients and clinicians. Baby boomers once dominated the dental industry as both patient and clinician, but millennials will soon become the majority. Millennials are comprised of individuals aged 23 to 35. They are often described as “digital natives,” socially conscious, entitled, optimistic, impatient, and multi-tasking. Understanding their ideology regarding the evolving marketplace, progressive dental practices, increasing health challenges, and dental advancements is critical. To stay on the forefront of the digital revolution, dentists need to be savvy about their web presence and online marketing tactics or risk getting left behind. Millennial dentists are seeking corporate employment instead of private dental offices as the baby boomer practitioners retire. It is important healthcare professionals understand the challenges the millennial generation will bring. Advancements in dentistry tailored to millennials will improve the oral health and dental experiences of patients and create a new business model for overall dental practice. Mutual understanding among patients and healthcare practitioners of this generation will enhance the quality of care and further promote the evolution of dentistry.

Karla Saavedra will graduate in May 2019 with a Bachelor of Science in dental hygiene. She plans to pursue a job in private practice in Northwest Arkansas.

Mary Gonzalez will graduate in May 2019 with a Bachelor of Science in dental hygiene. She plans to pursue a job in private practice in the Fort Smith area.

Ashley Manchamee will graduate in May 2019 with a Bachelor of Science in dental hygiene. She plans to pursue a job in private practice in the Northwest Arkansas area.

Saguey Martinez will graduate in May 2019 with a Bachelor of Science in dental hygiene. She plans to pursue a job in private practice in Arkansas.
Room 11
Presentations in English
Health Science 318

2:00  Group Presentation: Cherokee Lann, Sarah Switzer
2:30  Cherokee Tenario
3:00  Christopher Releford
3:30  Sarah Jones
Needful Things: Dickens’s Hard Times Wordpress Project
Presented by Cherokee Lann and Sarah Switzer
Faculty Sponsor: Dr. Lindsy Lawrence

*Needful Things: Dickens’s Hard Times* is a digital exploration of Charles Dickens’s *Hard Times* that uses the website building program Wordpress as a means of generating various ideas on one project into a cohesive, unified digital literature project, easily accessible throughout the web. This project is a form of digital humanities, highlighting ways of reading Dickens’s *Hard Times* and the issues the novel raises about class, gender, and education. This presentation highlights this digital resource, the work done to create it, and the ongoing debate of preserving literature onto a digital archive. For this project the Fall 2018 class of digital humanities at UAFS collaborated on a large-scale group project, with sub-projects for each category: crisis in the humanities, gender, and pedagogy. The crisis in the humanities section allows for users to see arguments, charts, and background research on the crisis of digital humanities, which is still a relatively new area of study. Audiences also receive ideas for teaching this novel in the classroom and listen to podcasts debating on the issues of gender representation within the nineteenth century.

Cherokee Lann is currently a junior studying rhetoric and writing at UAFS. He is a touring spoken word artist and slam poet and is an involved member of the Fort Smith local music scene as a show booker, helping support the progression of free expression.

Sarah Switzer is currently pursuing a Bachelor of Arts degree in English with a minor in rhetoric and writing with a prospective graduation date of May 2019. She plans on working in the publishing/editing field, where she eventually wants to own her own publishing company. She wants to get her master’s in English literature and plans to attend the University of Central Arkansas within the next year. She is originally from Rochester, N.Y., and moved to Hot Springs in 1999, having lived in Arkansas now for 20 years. In March she attended the Sigma Tau Delta international conference in St. Louis where she presented an essay based on this Digital Humanities project. This project has helped her appreciate digital humanities, and she wants to further her research within this field.
Breaking Faces and Industry Molds: An Extension of Self and Redefinition of Comic Book Standards
Presented by Cherokee Tenario
Faculty Sponsor: Dr. Lindsy Lawrence

In recognizing that diverse audiences are readily consuming available media, comic book publishers such as Marvel and Image Comics are rapidly adding more inclusive titles. Among these texts is G. Willow Wilson's *Ms. Marvel*, which paints a culturally accurate portrayal of a young Pakistani girl, Kamala Khan, who stumbles into superheroism and navigates these plains by drawing from her faith as a practicing Muslim. Contributing to *Ms. Marvel*'s success, in this aspect, is the alignment between the creators of the series who are practicing Muslims themselves. Kamala becomes more than just a character, but rather, an icon for a people often misjudged by their ethnic and religious identities.

The comic offers a critique of white culture and its way of perpetuating the cultural other as well as exposing the stereotypes of the genre. *Generation Why*, trade vol. 1, is combative by allowing a non-white, young female hero to have her own series while also successfully creating a story concerned with Kamala and her personal matters, rather than her alter ego Ms. Marvel. Though comic books still retain the stigma of being for younger audiences, the complexity of these texts is much more deserving of academic investment.

Cherokee Tenario is an undergraduate student in her senior year at UAFS. She is passionate about gender and race studies, particularly in the case of pop culture (i.e. film, television, and graphic novels). Her future plans include a master's in American cultural studies, which she hopes to employ through future research projects.

Psychologically Innocent: The Plausible Innocence of Grace of Marks in Margaret Atwood's *Alias Grace*
Presented by Christopher Releford
Faculty Sponsor: Dr. Lindsy Lawrence

In Margaret Atwood's Neo-Victorian novel *Alias Grace*, Grace Marks and James McDermott are accused of the murder of Mr. Kinnear and Nancy Montgomery. While James McDermott was sentenced to death for the crime, Grace Marks was instead sent to an asylum, for whether or not she was truly innocent or guilty was uncertain. Based on a famous Canadian murder case, Atwood explores the question of Grace's innocence through her conversations with early psychologist Dr. Simon Jordan. As the only living person who can account for the day of murders, Grace Marks is interrogated by Dr. Jordan, who attempts to help Grace recollect her memories through the series of events that eventually led up to the murders. Atwood explores the ways that Grace's innocence or guilt remains unresolved. Some believed she was innocent, others thought otherwise. There isn't sufficient evidence to suggest her guilt. However, through the sessions with Dr. Jordan, Grace's telling of her childhood and youth to the day of the murder has provided evidence of Grace's probable innocence, as the causes for her memory loss can be ascribed to traumas, lack of healthy psychological needs, and most importantly multiple personality disorder.

Christopher Releford is a UAFS sophomore pursuing a degree in studio art and minors in English and creative writing. He is currently a member of the National Society of Learning and Success and has been awarded a certificate of induction. He is a fan of Margaret Atwood and Joseph Sheridan Le Fanu.
Gender Trouble in Arcadia Bay: The Detrimental Effects of Masculine Gender Roles and Vilified Disability in *Life is Strange*

Presented by Sarah Jones
Faculty Sponsor: Dr. Lindsy Lawrence

*Life is Strange (LiS)* is an episodic video game developed by Dontnod Entertainment. This particular usage of the word episodic means that the fifteen to twenty hour game is broken down into multiple three to five hour segments, mirroring the structure of a television series. The story follows Max Caulfield, an adorkable teenager who finds herself on a quest to understand her new time rewinding powers, circumvent the terrifying visions of the future that have been plaguing her, and unravel the mysteries surrounding a missing girl.

The game incorporates a lion’s share of emotionally heavy, thought provoking themes and moral dilemmas, and it has earned a reputation for using them to devastating effect. These themes have all been explored extensively by the game’s devout following. However, there are aspects that are seldom discussed: toxic masculine gender roles and the destructive part they play within the game, as well as vilified disability feeding into the toxic behaviors of certain characters.

The three characters that will be discussed are Nathan Prescott, David Madsen, and Mark Jefferson. I suggest that these characters behave the way they do because they are either subject to, or have internalized and are enacting, toxic masculine gender roles.

*Sarah Jones is an English with teacher licensure major who plans to teach at the high school level. Her research interests include gender studies, cultural studies, and video games.*
Room 12
Presentations in English and Rhetoric & Writing
Health Science 321

2:00 Chelsie Brannan
2:30 Sherman Miranda
3:00 Paula Johnson
Se þe in þystrum bad: The Horror of Grendel
Presented by Chelsie Brannan
Faculty Sponsor: Dr. Erik Carlson

The concept of fear has been examined by numerous societies and the collective depictions of humans encountering monsters which have been produced as a result exhibit shared story features regarding these supernatural threats. However, each society has its own unique relationship with this paradigm of fear, and the Anglo-Saxons of early medieval Europe were no exception. While the political activities and lifestyle of the Germanic war band known as comitatus are subjects which have attracted sufficient scholarly attention, a true establishment of the concept of horror within this emotional community has been difficult to prove, largely due to the scarcity of contemporary texts. However, it is possible to analyze the effect of fear as a storytelling mechanic within the poem Beowulf in regard to how it is organized and developed by the poet. This research seeks to re-examine the text as a foundation of the social and philosophical constructions that characterize the genre of horror writing within Western society. My intent is to provide sufficient evidence that this emotional community had its own distinct relationship with fear by examining the depiction of Grendel and Grendel’s actions as an example of horror within Beowulf.

Chelsie Brannan graduated from UAFS in the fall of 2018 with my Bachelor of Arts in English and a minor in creative writing. During her time at UAFS, she received the benefit of enrolling in some independent courses with a dedicated professor, which allowed her to study and begin to learn Old English. Because of the skills and information given to her in those classes and in her diligent translation of Beowulf, she was able to complete this research. During her time at the university, she also had the honor of having four original poems selected for publication in the 2016 and 2018 issues of the Applause Literary Journal. Chelsie is a 29-year-old non-traditional student who lives in Fort Smith with her fiancé and their two cats, Fuji and Quinn.

Zombies and Apocalyptic Conditioning: The First Night Trauma Theory
Presented by Sherman Miranda
Faculty Sponsor: Dr. Erik Carlson

Modern zombie literature glosses over first night trauma, the first experiences of the apocalypse, ultimately presenting characteristics described by Cathy Caruth through trauma theory. She states “[t]he return of the traumatic experience… is not the signal of the direct experience but … the attempt … to master what was never fully grasped in the first place.” Trauma not only surrounds these survivors but increases their likelihood of survival. Trauma keeps survivors alive with new societal rules emerging from those able to adapt or seek shelter during the initial catastrophe. Everyone shares First Night trauma collectively but experiences it individually through survival. Using zombies as constant trauma reinforces fight or flight response in survivors to keep them alive. This extends to other survivors with conflicting ideologies and they either come to an agreement or clash violently creating new societal rules for the survivors. The idea of collective trauma in zombie literature is positive for survival because the coping mechanisms are somewhat positive. In zombie literature, the characters’ initial trauma is their key to survival. Zombie literature allows audiences to understand trauma in its most basic form.

Sherman Miranda is a graduate of UAFS, receiving a Bachelor of Arts in English. He uses the horrors of apocalyptic literature through films, novels, and gaming to create the body of his academic work. This extends into his personal life creating apocalyptic role playing scenarios and creative fiction. His main goal is to attend graduate school to further his education with the hopes of further developing his ideas, both academically and creatively.
Ronald Reagan and Margaret Thatcher: Political and Rhetorical “Soul Mates”
Presented by Paula Johnson
Faculty Sponsor: Dr. Ann-Gee Lee

Ronald Reagan was the first president in American history whose destiny went from Hollywood’s silver screen to a golden opportunity in successfully ending the Cold War. Margaret Thatcher, the first female prime minister of Great Britain, also known as the “Iron Lady,” teamed up with President Reagan in many areas including political ideology and rhetorical speeches. Both Reagan and Thatcher were Cold War heroes in their fight against Communism, actively restoring democracy, not just in their own countries but around the world. They supported conservative governments, believed in freedom, and upheld moral ideology.

This rhetorical comparison paper will focus on two famous speeches: Reagan’s Address to Members of the British Parliament better known as “The Westminster Speech” and Thatcher’s speech at Kensington Town Hall also known as “Britain Awake,” making Thatcher known as The Iron Lady.

According to George Shultz, “‘Ideological soul mates’ is a very good description [of their relationship.] I don’t think it was so much that she was pro-American or that the president was pro-British. It is more that they saw the world in similar way, [particularly] the Cold War.” This particular analysis will focus on their rhetorical styles, use of rhetorical appeals (pathos and logos), and ideology while also demonstrating various rhetorical terms.

Paula Johnson is a recent UAFS graduate with a Bachelor of Arts in rhetoric and writing and a minor in political science. She is also a graduate of Westark Community College, where she obtained a certificate in licensed practical nursing. She has been a nurse for 23 years. She enjoys researching political leaders and their contributions based on their agendas and the rhetorical styles of their political speeches. Paula previously participated in the Undergraduate Research Symposium in 2012, presenting Rendezvous at Reykjavik: A Look into the Character and Values of Ronald Reagan and Mikhail Gorbachev. She has researched the Cold War with detailed information and correspondence from the government archives. Among her interests in rhetoric is to study and someday do political speech writing. This brings her today to present a rhetorical analysis of two famous speeches one on President Reagan’s “Westminster Speech” and Prime Minister Margaret Thatcher’s “Britain Awake” speech.
Student Research Symposium

Room 13

Presentations in

English Literature

Health Science 325

2:00 Jackalynn Self
2:30 Breanna Stoufer
3:00 Golden Mulkey
3:30 Allison Primm
Dementors, Depression, and the Monster Stigma of Mental Health in the 21st Century
Presented by Jackalynn Self
Faculty Sponsor: Dr. Cammie Sublette

My essay delves into mental health issues in J.K. Rowling’s Harry Potter series. I include information about Rowling’s own mental health struggles and how these struggles influenced her writing. I argue the Dementor, Rowling’s monster, parallels the nature of depression and its symptoms. I compare and contrast Rowling’s wizarding world and the people of the 21st Century and how depression is combated. I also discuss other mental illnesses in relation to Rowling’s work. I’m particularly interested in the ways Rowling uses the monster stigma to illustrate attitudes toward mental health disorders in the 21st Century. Rowling writes, “Of course it is happening inside your head, Harry, but why on earth should that mean that it is not real?” (Deathly Hallows). This quote shows the importance and validity of mental illness and the issues victims face daily. According to Peter Stern, author of Defeating the Dementors, “Depression is a devastating disease. It affects not only the afflicted but also the people around them, their families, and their closest relations. It indiscriminately hits all strata of society no matter one’s intellectual background, age group, or economic situation” (Stern 67). Much like the Dementors, mental illness does not discriminate; neither should society.

Jackalynn Self is a junior at UAFS and a member of the Myles Friedman Scholarship Program. She is majoring in English and working towards a double minor in theatre and Spanish. Currently she holds a position as the student assistant for the English, Rhetoric and Writing Department. Jackalynn hopes to use her connections and opportunities gained at the university to continue her education in graduate school with a focus on the development of the English language. Currently she is maintaining a 3.94 GPA and hopes to grow and continue this academic success.
Destiel, We’re on a Ship: Queer Theory in Contact with Fan Fiction in Relationships Between Fans, Actors, and Creators
Presented by Breanna Stoufer
Faculty Sponsor: Dr. Cammie Sublette

Television in America has become more immersive and audience connecting as it has continued, specifically within the world of *Supernatural*, created by Eric Kripke. *Supernatural* follows the storyline of two brothers on the road of Route 66, walking in their father’s footsteps; saving people and hunting things, the family business. After their mother was killed by a demon, John Winchester raised his boys over the road, searching for the demon that killed her.

My paper focuses on the relationship between the writers behind the show *Supernatural*, the actors, and their connections to their fans; specifically in relation to the idea of fan fiction writings of Destiel, this fan-created homosexual relationship between the oldest brother, Dean Winchester, and the angel, Castiel. The script allows the fandom, the fans’ kingdom, to write the show’s characters into their own stories. A large portion of the queer narrative comes from how the fans have created ‘ships’ within the show, meaning that they’ve established with great emphasis who they desire to be together based on certain relationships, thus intertwining Eric Kripke’s world of the characters fighting evil and the fan world where the characters can be placed into those desired relationships.

*Breanna Stoufer is a sophomore. Her major is English Teacher Licensure. Breanna was born and raised in Fort Smith, Arkansas. She enjoys watching various shows, follows several fandoms, and enjoys both reading and writing in her free time. In high school, she began writing her own book series of the sci-fi/fantasy genre and hopes that one day she’ll be a published author. The first job that Breanna wants to take on is teaching high school English, and maybe even becoming a professor, but being an author is her ultimate dream job. After that, she wants to work at a publishing company as a fiction editor.*
The Sky is Falling: From Chicken Little to the 21st Century Apocalypse
Presented by Golden Mulkey
Faculty Sponsor: Dr. Cammie Sublette

The sky is beautiful. It cradles the sun and the moon. Perfectly placed white clouds often decorate it, and it offers considerable comfort to us all, if only through its ample supply of oxygen and warmth. In the world of heroes and villains, the sky does not often scream monstrous, except, of course, in the timeless classic *The Remarkable Story of Chicken Little*. When Chicken Little “heard it with [her] ears, (...) saw it with [her] eyes, and (...) part of it fell on [her] tail” (3), she was not only convinced that “the sky [was] falling” (3), she feared it. Many 21st century apocalyptic texts have latched on to Chicken Little’s fear, as their narratives envision mankind’s ultimate extinction via an ecological disaster.

Many scholars believe the apocalyptic narratives of today fall into one of two categories - the fear of technology or the fear of a theological end of days - and typically follow the same formula of destruction. Yet in some modern representations of the theological apocalypse, namely *The Road, Station Eleven, The Day After Tomorrow, I Still See You, Falling Skies, The Hunger Games,* and the *Resident Evil* franchise, the fire and brimstone often associated with a theological apocalypse is noticeably missing. In its place something softer, colder, and somehow more sinister can be seen falling from the apocalyptic sky, creating a visible shift from the fear of extinction to the fear of being forgotten.

Before the dawn of the Internet, before the advent of the cell phone, before televisions transitioned from a box to a flat screen, Golden Mulkey was introduced to the world on a cold day in November. Eighteen short years later, just as the Internet began to take its first steps, she too ventured away from home to chase adventures, follow dreams, and find her own path. Her first adventure lasted 20 years. It brought her a career, a marriage, and a perfect baby boy who continues to amaze her each and every day. But the winds changed, her dreams transformed, and eventually she knew it was time for a new adventure. Today she’s following those dreams at UAFS, forging a new path in the world of education and proving, if only to herself, sometimes change is the greatest adventure of all.

What the Fork? The Good Place: A New Take on Comedy and Horror
Presented by Allison Primm
Faculty Sponsor: Dr. Cammie Sublette

Welcome! Everything is fine. At least, that’s what the viewers are told as they enter Michael Schur’s newest comedy, *The Good Place*. As with his other work, Schur’s *The Good Place* breaks the mold of comedy and gives a fresh take on humor and character development. But could he also be breaking the mold of horror fiction? *The Good Place*, though categorized as a comedy on NBC, displays several characteristics of the horror genre. It is a parody of ethics, taking into question and making fun of morality itself. The goofy comedy quickly turns into something uncomfortably appropriate for our apocalyptic era, exploring metaphysical fears, existential dread, and Freud’s idea of the uncanny. This paper analyzes *The Good Place* as a new view on monster culture and how it shares several features with the horror genre. Though there are literal monsters and demons portrayed in the show, the true monsters are immoral humans and life itself. Only in death are people less inclined to have monstrous attributes.

*Allison Primm was raised in Greenwood and made the geographical leap to UAFS after high school. She is currently a senior rhetoric and writing major with a focus in creative writing. However, due to too many hobbies and interests, she also minors in English and media communication. She hopes that someday she’ll know what to do with all of her education, and be able to teach people what she has learned.*
Room 14

Presentations in
Art History and
English Literature

Health Science 326

2:00  Mattison Fancher
2:30  Cheyenne Moore
3:00  Markie Garner
3:30  Catherine Leimberg
As I Lay Dying and Toxic Maternity: Faulkner's Answer to Angelic Expectations
Presented by Mattison Fancher
Faculty Sponsor: Dr. Laura Witherington

William Faulkner's 1930 novel *As I Lay Dying* details the journey of the Bundren family and their quest to put the matriarch, Addie, to rest. Faulkner uses three distinct female characters to trace the decline in Southern motherhood. Cora Tull, the Bundrens’ neighbor, displays a form of motherhood that is toxic. Addie works against Cora’s toxicity and defies the standards of a mother in the South. Dewey Dell, Addie’s daughter, is pulled by both extreme cases of motherhood. Faulkner utilizes these three women to show that maternity can be toxic even when women are perceived as perfect or as defying problematic standards. I argue that Faulkner uses Cora, Addie, and Dewey Dell to dissect motherhood and show that maternity is not always perfect. Motherhood thrives on the expectations that a woman will care for her husband and children while keeping the house clean and preparing meals on time. Southern motherhood also has religious roots that add to the already overwhelming angel model. A transgressive Southern mother like Addie Bundren is shunned by her neighbors and must deal with the consequences. The transgressive mother has no ally and is not allowed to openly discuss her distaste for the mold of motherhood.

Mattison Fancher is a senior at UAFS. She is majoring in English with a minor in rhetoric and writing. After graduating she plans to attend graduate school and eventually work as an editor. She has interned with the Literacy Council of Western Arkansas and continues to volunteer as a tutor.

Where is Australian Literature in the Western World? An Examination of the Canon in *My Brilliant Career*
Presented by Cheyenne Moore
Faculty Sponsors: Dr. Laura Witherington and Dr. Lindsy Lawrence

Miles Franklin’s *My Brilliant Career* is a somewhat hidden gem in the realm of what is considered the global literary canon. Although it is read as fiction, it is loosely based on Franklin’s life. This unique style of writing allows the novel to subvert the normal fictional story and be more blunt in the ways it deals with social issues that plague Australia during the late nineteenth and early twentieth century. This paper argues that *My Brilliant Career* is a gender centric novel satirizing a society focused solely on forcing women to choose between marriage and a career, even if they could have had both.

Franklin’s way of exploring the societal issues is done in a way that’s both fresh and tactful. The main social issue it explores, however, is the marriage question and women’s place in the workforce. Sybylla, the novel’s protagonist, desires to have a career as a novelist, but she is faced with many obstacles due to the time period. Sybylla’s life is a series of events in which she is forced to fit the subservient domestic wife mold, one she does not wish to follow. Despite being made into a movie after its publication, the text is not well known even within the canon. Although it is considered to be autobiographical in nature, it is a historically based novel only loosely based Franklin’s life.

Cheyenne Moore is a Van Buren native but grew up in St. Augustine, Fla. A senior English with teacher licensure major, she hopes to build an environment of respect and love in her classroom upon graduation. She believes in using literature as a vehicle to encourage critical discussions as a method to change the future.
Because There is No Way to Redo 2018, We Must Do Better: The Consequences of Irreverent Discourse Between Women and Men in Politics
Presented by Markie Garner
Faculty Sponsor: Dr. Laura Witherington

“The Kavanaugh Hearings” refer to the Senate confirmation hearings for Supreme Court Nominee Judge Brett Kavanaugh. Although expected to only cause a heated political divide, these proceedings brought to the forefront issues pertaining to the treatment of women and minorities, starting with the unjust consideration for the voices of the female senators heard during the discourse of the committee hearing, and ending with Dr. Christine Blasey Ford’s heroism in breaking her silence in the face of a patriarchally corrupt system. The paper dissects the rhetoric of these hearings through the gender and linguistic theories of Deborah Tannen and Audre Lorde. In so doing, it explores the acts of interruption, the conversational overlap, and the symmetrical manner in which Judge Kavanaugh aligns himself with specific women of power. Also worthy of crucial consideration are the silences in between the discourse, specifically those pertaining to the testimonies of both Dr. Ford and Judge Kavanaugh. Dr. Ford’s choice to transform her silence into action forced our nation’s justice system to publicly display their detrimental handling of sexual assault allegations and the double standard in which women and men, victims and perpetrators, must defend the integrity of their character.

Markie Garner is a non-traditional student in her senior year at tUAFS. She is majoring in English with teacher licensure for grades 7-12 and is a member of Sigma Tau Delta and Kappa Delta Pi and a mother to three children. She will graduate in May of 2019 and plans to transition into the field of education at the high school level.

Mirror Mirror on the Wall: Reflections of Platonic Theory in The Lady of Shalott
Presented by Catherine Leimberg
Faculty Sponsors: Dr. Laura Witherington

Studying the use of Platonic Theory in John William Waterhouse’s paintings as they relate to Alfred Lord Tennyson’s The Lady of Shalott led to the discovery of the metamessage of a woman’s role in the Victorian Era. In my presentation I will explore the correlation between something tangible, Waterhouse’s paintings, and something intangible, Plato’s philosophies and the metaphorical representation of women. Throughout Waterhouse’s works, we see a the use of Plato’s simile of the cave and his theory of imitation. Through my study, I have found women’s positions depicted as significantly limiting in both the writings and paintings used to portray the Lady of Shalott, and the application of Platonic Theory to the works only strengthens the relationship between the text and the art. My analysis finds confinement for women who were not given access to the world around them by means of education or enlightenment based on their gender and placement in the social sphere.

Catherine Leimberg is currently an intern teaching English at Northside High School and member of the English Honor Society, Sigma Tau Delta. Her research interests include education, psychology, and film and media studies. This is her second symposium presentation. She will graduate in May 2019.
Poster Presentations
Boreham Library
A Break in the Pipeline
Presented by Darien Bartholomew
Faculty Sponsor: Dr. Argie Nichols
Table 1

For my symposium I want to figure out why gaming companies have been releasing game related media to their consumers, then selling the final product that does not reflect what was promised. As an example, in 2011 Gearbox Software had shown beautifully constructed gameplay footage of their upcoming game “Aliens: Colonial Marines”. Fast-forward to 2013, the game is released in an almost unrecognizable state with massive downgrades and none of what was promised to the consumers back in 2011. I will also touch on the controversy of microtransactions that have been plaguing and angering gamers. Microtransactions used to be one to two-dollar aesthetics a consumer could buy to either enhance their gaming experience or to better customize it. Today, similar items are being sold for up to twenty-dollars or more by companies. This brings in the gambling portion of this topic. Some games include “loot boxes” that give consumers random items, even if they are not what the consumer wants. There are also specific items a consumer may want that are exclusive to the “loot box” system. These systems have caused law suits against companies and even countries going as far as to ban those types of “loot box” systems.

Darien Bartholomew was born on May 23, 1997, in Springdale. He would go on to live out his youth and young adulthood there. Darien had always been fascinated by art since enrolled at Walker Elementary. Once reaching 6th grade at Helen Tyson Middle School, he started focusing on developing his own art style. Darien had then been selected to join the middle school’s choir and percussion band in 7th grade. While in 8th and 9th grade at Southwest Junior High School, he performed with the school’s Select Men’s Choir and the U of A Children’s Choir. While attending Springdale High School, Darien had figured out his own unique style of art leading him to win a regional art competition. He also led the school’s robotics team in 2015. After graduation he found exactly what he wanted to pursue at UAFS. He currently studies 3D modeling and animation.

The Future of Technology in College Courses
Presented by Quentan Mertens
Faculty Sponsor: Dr. Argie Nichols
Table 2

Virtual reality is becoming a main stream form of entertainment for videos and games. Working upon this, colleges across the country could use this technology in classes for a variety of degrees. Intro courses can start off with virtual or possibly a mix of virtual and actual reality. This could lead to a decrease in classroom injury in fields such as automotive and welding and an increase in student involvement and productivity across all fields. Research will show how big virtual reality is as a whole along with amount of use and age demographic. It will also show statistics on classroom injury and preface how virtual reality can be used in an educational setting.

Quentan Mertens is a senior at UAFS hoping to get his foot in somewhere that could lead to something even bigger. His biggest dream is to work for a studio in Washington State. He has expressed interest with game development and general cinematography with a focus on rigging. Loving the idea of virtual reality, he hopes that one day more specialized classes will be available to the everyday classes, lectures, and labs in colleges across the country. He will graduate in May with a degree in animation technology.
Building Worlds in VR
Presented by Hayden Hall
Faculty Sponsor: Dr. Argie Nichols

VR is a new, leading-edge field, and because of this, not many people learn or have the opportunity to work with it. With the recent addition of several VR workstations on campus, I have the unique opportunity to teach myself the tricks and workflow required to work in this new field.

My research project is to build a campfire scene inside of a game engine, most likely Unreal Engine. I will design the scene to work on as many platforms as possible. This will require a rather unique, simple art style. Lowpoly designs have been my main point of focus in my studies and independent work, and this project is the perfect opportunity to really push the boundaries of what I can do as an artist.

Existing methods and techniques employed in VR design across all levels of development will be researched. I will use this research to design my scene. I will take a more artistic approach graphically, which allows me some degree of freedom in the overall design, while still allowing for high performance across an array of systems. In the end I will achieve not only artistic excellence, but test myself at the same time.

Hayden Hall was born on Oct. 3, 1996, in Fort Smith. He resides in Alma and attended school through the Alma School District before graduating from Alma High School with the class of 2015 on May 16, 2015. Hayden decided to attend UAFS, pursuing a degree in animation with a focus on making assets for game development. After receiving his associate degree in computer graphics technology, he applied and was accepted into the Bachelor of Science program for animation technology. Currently in his senior year of the program, well on his way to completion, Hayden intends to graduate cum honore from UAFS with his bachelor's degree on May 11th, 2019. After graduation, his plans are to look for a job in the games industry. Hayden puts time and passion into his work and hopes his dedication will take him far in his industry.
Maasai Beadwork and Their Color Meaning
Presented by Nova Morro
Faculty Sponsor: Lisa Cady
Table 4

The Maasai people are an indigenous tribe of Tanzania, Africa. They are mainly a farming and trading tribe. Women’s duties include caring for the children, building houses, and helping take care of livestock. The men’s duties are hunting, gathering materials, and farming. Each have a role to perform in the tribe and are raised knowing this role. One very important aspect of their culture includes the art of bead making by the women, and learning the meaning of the colors associated with them.

From a very young age, girls are taught how to weave beadwork and make adornments for many events and celebrations for the tribe, such as weddings, rites of passage; as well as simple things like increase in age. There are specific colors used in the bead work, and each have a different specific meanings for the Maasai people, such as, yellow representing the sun and wheat or red representing blood and the people’s strength. Every member of the village wears a special set of beads meaning certain things. They gain more throughout their lives that signify milestones in their life. In this presentation, you will learn all about the beadwork and what it represents.

Nova Morro was born in Houston and raised by her grandparents. She lived in Texas until fifth grade, then moved to Booneville with her family. Throughout her last few years in high school, she took an interest in art classes. She grew up doing art for most of her life, but found her passion later in high school and eventually in college. After graduating high school in 2013, she started at UAFS for graphic design. After two years she moved into CGT digital design, eventually gaining her associate degree from the program, and is now going for her bachelor’s in animation technology. Nova is set to graduate in May 2019. Her passions lie in 2D and 3D art as well as many other topics in the art field. She hopes to move onto a field in video games or some sort of design industry.
VR and What it Could Mean for Teaching in Medical
Presented by Chloe Warren-Salidvar
Faculty Sponsor: Dr. Argie Nichols
Table 5

My research project is based on discovery of medical models used in collages. Most schools will spend hundreds of dollars for just one model. My theory is that with a much cheaper VR system we could move away from physical models, or at least lessen how many the school has to buy. There could be packages offered allowing teachers and schools to customize their lesson plans. Even if most of these models are a onetime buy for collages, the packages could offer more than just plastic models that collect dust.

My project is a simplified demonstration of the bones and some organs laid in front of the user in a VR system. The student could grab a bone and get information on the bone. There could also be options to simulate what occurs with a heart attack. It could help students visualize the illness and body systems in a small space without having to look through tons of plastic models. My research will provide a better solution for both faculty and students.

Chloe Warren-Salidvar is a resident of Fort Smith. She was born in San Antonio and later moved to Arkansas. She spent most of her childhood in Van Buren but graduated at Charleston High School. Chloe spent a lot of her school years drawing and designing characters and environments. Learning about the WATC program at UAFS, she decided to get a head start on college during her senior year. Chloe started college as a graphic design major. After high school she enrolled at UAFS, switching her focus to drafting and design. This led Chloe to an animation technology degree that she had always dreamed of achieving. Chloe will graduate with a Bachelor of Science in animation technology in May 2019. She plans to move to Northwest Arkansas for employment.
The Standard and Unconventional Representations in 3D Media
Presented by Jaymie Lott
Faculty Sponsor: Dr. Argie Nichols

This research covers the origins and uses of storyboards and concept art in the animation field, as well as their place in the creative process for films, both animated and live action. This research includes detailing the creation of storyboards as a tool in the filmmaking process, created by Georges Melles for the Disney Company, and their necessity in order to flesh out the characters, storyline, and plan the shots. This can be thought of as a form of brainstorming, while working off the basis of an idea. The research would also include concept art as a communication to link an idea to production, used to define the emotional content as well as expand a character’s personality. Used in multiple industries such as game, film and animation, concept art ensures that time will not be wasted by the art department. Included will be a short animation along with the story boards and concept art used in the process of creating the animation. This will show practical and real usage for both storyboards and concept art in an easily understood manner that is reflected onto the viewing audience. Viewers can then see why it is important for studios to have a separate story department with specialized storyboard and concept artists.

Jaymie Lott is a senior at UAFS working for a Bachelor of Applied Science in animation technology. She is 23 years old and currently teaches paint classes as a part-time job on the weekends. Jaymie received an associate degree in digital design from UAFS and an Associate of General Studies from the University of Arkansas Rich Mountain. Her hobbies include photography, art, and animals. She has worked at a photography studio for five years as well as working in a graphics and trophy shop designing and helping print t-shirts to order. A dream job for Jaynie would include illustration, concept art, or storyboarding. Her inspiration for animation and design came from her love of Disney movies and their advanced storytelling and character design, specifically the movies 101 Dalmatians and Rio.
The Possibilities of Virtual Reality
Presented by Issa Ortis
Faculty Sponsor: Dr. Argie Nichols
Table 7

As the prevalence of Alzheimer’s disease increases, so too does the focus on different solutions and treatments for cognitive decline. Some of the biggest challenges with the disease are the insufficient funding, problems in detecting and diagnosing the disease, and inadequate treatments. One thing that has been able to shine some light on the situation though, is virtual reality. VR is expected to have a much wider-reaching impact and is already affecting the way some doctors approach Alzheimer’s care. My research will showcase how video games can be used to help the elderly, a demographic that would be least likely to play video games and how they’ve been positively impacted by it. The goal for the project would be to look at how much potential VR has for treatment, how it works, and showcasing a nostalgic, peaceful, scene for the audience to see the benefits for themselves.

Issa Ortiz is a senior at UAFS majoring in animation technology with an associate degree in computer graphic technology. Issa is Honduran, proud to be a first-generation American and a first-generation college student. She has always had a passion for animation. When her parents bought a computer in 2007, she and her older sister learned how to create short animations and videos using Windows Movie Maker. However, they had a tendency to push the limits on that computer, causing it to crash multiple times. What Issa loves most about animation and art is how it has the ability to leave a lasting impact. While she would enjoy creating special effects for movies or working in the video game industry, she is also interested in pursuing how 3D technology can benefit the medical field. Inspired by this she is conducting research on how VR systems can be used to improve the lives of the elderly and Alzheimer patients. When she is not busy with animating, she enjoys spending time with her family and playing video games with friends.
Analysis of E-Sports to Determine Whether it is a Sport
Presented by Ryan King
Faculty Sponsor: Dr. Argie Nichols
Table 8

E-sports have had a growing community for quite a while now and some games even have massive events for these special occasions. Although e-sports have achieved such a positive response, some people still do not recognize it as an actual sport. This article stands to help support the idea that e-sports should be considered a sport and we will support this thesis through 3 concepts. First, we will look at the hardships and challenges players face when in the competitive scene, compare it to traditional sports, and determine whether or not the aspects are similar to traditional sports. Second, we look at whether using physical exertion on an object like you would in football, basketball, etc. is really what determines a sport or if there is more to it. Last, we talk about the social aspect of e-sports and compare it to other traditional sports while pointing out the similarities and differences, then we determine whether or not these traits identify with traditional sports. E-sports are already being watched and enjoyed by millions of people, this can show a big impact on society and already has had several impacts on society. E-sports are changing the definition of sports day by day for millions of people, and it could change today for you as well.

Ryan King is a student at UAFS set to graduate in December of 2019 with a bachelor’s in animation technology. Not sure if this degree was right for him, he began to have doubts in the beginning, that is until he found a new passion: creating low poly art style models. Having a love for the low poly art style, he began to incorporate his two biggest hobbies: creating low poly art style models and playing video games. Ryan began to work on several ideas for creating his own video games with this art style but hasn’t yet achieved what he was looking for. He hopes to let this be the stepping stone in his career path to fully get his name out in the open for all to see his work and show what he brings to the table with his creativity and passions.

3D Printed Old Train
Presented by Alyssa Pineda
Faculty Sponsor: Derek Goodson
Table 9

Since I am a really big fan of old trains, I want to make a 3D model of an old train. Even though we have modern train designs, so why not bring the past to the present or better, to the future. When you’re thinking about old trains, there’re steamed engines; you can see the wheels not like the modern trains right now; it has a loud horn; and it’s also loud while it travels. My goal is to make an old train on the computer by making the all wheels to spin while it is connected to the connecting rod. I know that it isn’t something new for this generation, but this is something new for me to make. I’m going use Autodesk Inventor or SolidWorks to create and assemble the parts, then I’m going to 3D print it and assemble it.

Alyssa Joy Pineda is a 20-year-old sophomore who has lived in Fort Smith for two years. She migrated from the Philippines and is majoring in computer graphic technology, expecting to graduate in fall of 2019. After she graduates with her associate degree, she plans to find a career working with AutoCAD, SolidWorks, and/or Revit.
**Combat: An Animated Short**
Presented by Austin Waldrop  
Faculty Sponsor: Derek Goodson  
Table 10

This project is a short animation (with some live-action elements) made using 3DS Max and is heavily influenced by the movie/arcade video game Tron®. My presentation will show the progression from the storyboard with initial design ideas to the modeling of the various components of the video and finally the completed project. This project will be an important part of my portfolio that I am developing to land a position in the animation field after graduation.

*Austin Waldrop is a 2013 Mulberry High School graduate and is currently attending UAFS in the Associate of Applied Science in computer graphic technology program. He is pursuing a career in animation after graduating this spring and hopes to work for Pixar Studios.*

**Creative Immersive Environments in Autodesk Maya**
Presented by Mason DeWater  
Faculty Sponsor: Derek Goodson  
Table 11

This project will be of a futuristic city which has been destroyed in a cataclysmic disaster. It will consist of both still shots and a video showing different portions of the city from various viewpoints, including destroyed buildings and debris. By creating this video, I will show how Autodesk Maya® and other 3D modeling programs can be used to make immersive environments for video games, movies, and other forms of media.

*Mason DeWater is a sophomore in his final year of the Computer Graphic Technology program. He will complete his Associate of Applied Science in computer graphic technology with a concentration in general drafting this spring, although his primary focus has been animation since starting in the WATC program as a junior at Alma High School.*
Dreams Come True in Revit
Presented by Peyton Bader
Faculty Sponsor: Derek Goodson

Revit is a program used by many architecture firms that allows the firms to create floor plans and even 3D models of residential or commercial projects with ease. Using Revit I will bring a realistic 3D model of my mom’s dream home to life. My mother was in an art class her senior year of high school. One of the assignments for the class was for the students to create a floor plan for a house using their art skills. This was one of her favorite assignments and she has kept it ever since creating it. I will be using her floor plan to create an accurate model of both the exterior and interior of her dream home using Autodesk Revit. By recreating her dream home in the software, I will show the effectiveness and wide range of capabilities of Revit as well as making my mom’s dream come true.

Peyton Bader is a sophomore in the Computer Graphic Technology Department. He started his academic career at UAFS in the WATC program as a senior from Greenwood High School. This spring he will graduate with his Associate of Applied Science in computer graphic technology with a concentration in architectural drafting. Peyton plans to continue his studies by starting in the new unmanned aerial systems program in fall of 2019.

A Closer Look at the UAFS Reynolds Bell Tower
Presented by Trevor Gulley
Faculty Sponsor: Derek Goodson

The Reynolds Bell Tower was commissioned on May 21, 1993. This bell tower has been a valuable asset to the UAFS community. I will be attempting to reconstruct the Bell Tower to a smaller scale that will be able to be taken apart like a jigsaw puzzle. This model will be as close to a real life replica of the building. Others have attempted this project before, but no to the extent I will be doing. I will be using multiple applications from my computer, and machines like a 3D printer, to build the model. I hope to find hidden features in the bell tower that may not be easily seen by the human eye. As an outcome of this project we will be able to look at the bell tower a lot closer, and in more detail. The objective of this project is to see what can be done to improve our bell tower in preparation for the future.

Trevor Gulley is a Houston native attending UAFS with his twin sister. After graduating high school cum laude in 2016, he decided to play basketball at UAFS and major in accounting. In the spring of 2018 he switched his major to applied science in computer graphic technology. He is looking forward to the challenges this major has to offer.
The Next Big Thing  
Presented by Audrey Weece  
Faculty Sponsor: Derek Goodson  

Table 14

In today’s world we are constantly trying to design and create new things. We all want to be the one who makes the newest big thing. In this presentation I am going to show how easy it can be to start with a simple line in Photoshop and create many different designs. Just taking the line and then changing it a little bit in different ways can make a big difference. These designs can then be used to create many different objects.

Audrey Weece is a Southside High School graduate currently pursuing an Associate of Applied Science in computer graphic technology with a concentration in architectural drafting and plans to graduate in December 2019. She currently works as a manager at Walgreens and spends her spare time teaching the youth group and young children at her church. She dreams to one day work as an architectural designer at a local firm and design a house for all of her family.

Implementing NRF24L01 Radio Transceiver for Radar Control  
Presented by Rhett Kelley, Emmanuel Quarshie, and James Nelson  
Faculty Sponsor: Dr. Kiyun Han  

Table 15

Radio frequency technology has become synonymous with wireless and high-frequency signals, consisting of wireless communication systems like AM radio to computer local area networks. We did a ride along with the Poteau Police Department, and one of the issues that came up was with their rear radar being out of position to detect oncoming traffic if the front of the car is pointed in the wrong direction. To address the problem we designed a small wireless system that had a joystick so that the driver of the squad car could control the movement of the rear radar and point it in the most effective position. Our team implemented the control of the radar’s position by moving a servo motor wirelessly using the NRF24L01 radio transceiver and an Arduino Nano. The system will also be equipped with a camera system which will set on top of the radar to provide positional feedback to the user.

Rhett Kelley will graduate in the spring of 2019 with a bachelor’s in electrical engineering technology. In the past he completed a bachelor’s degree in biology. He hopes to get a job in the future in the biomedical equipment field. He is the proud parent of three boys and loves spending time coaching and playing sports with them.

Emmanuel Quarshie is 42 years of age from Ghana, West Africa. He has been in the United States for 16 years and lived in Fort Smith for 15 years. His previous work includes working for the City of Fort Smith Sanitation, Simmons Foods, Twin Rivers, and Schneider Trucking Company, where he obtained a Class A CDL. He recently joined the Arkansas Air National Guard to proudly serve his country. He will graduate in December 2019 with Bachelor of Science in electrical engineering technology.

James Nelson is originally from Scurry, Texas. He moved to Arkansas in 2010 and was working in factories before deciding he wanted to do something more with his life. When he was 33 he had an opportunity to begin school and decided to go into the electric and electronic field because that is where a lot of industry is headed. In December of 2019, at the age of 37, he will graduate with a bachelor’s in electrical engineering technology. He is currently working at Southwestern Die Casting and is planning to move up in the company upon graduating.
Recent research has shown a trend of increasing temperatures over the past thirty years (1988-2018) in Fort Smith, AR. This project is designed to deductively investigate any possible correlations between the temperature increase and precipitation changes over a thirty-year time period. We collected our data from the Fort Smith Regional Airport (FSM) and focused on the sum amount of precipitation for every month during the thirty-year time period. The data was analyzed by splitting the months into seasons, to identify any possible trends in precipitation changes. When comparing the average temperatures to our precipitation data, we found a negative correlation between increasing temperatures that lead to decreasing precipitation for the fall and winter months. This could be caused by a trend of high pressure migrating into the later portions of the fall/winter seasons. The spring and summer months did not show distinct trend changes in precipitation when compared to the monthly average temperatures.

Samantha Barnett is a sophomore geoscience major at UAFS. After receiving her bachelor’s, she plans to further her education and go on to law school to become an environmental lawyer. Since being at UAFS, she has been involved in multiple research projects and plans to start another in the summer. She has been enjoying her experience here at UAFS and looks forward to what other opportunities are to come.

Dalton Kesner is a junior geoscience major. His goal is to go to graduate school and become a meteorologist. He loves studying nature and observing its changes. He would much rather directly study the weather than be on television broadcasting it. Dalton enjoys learning about the atmosphere and how it impacts our life on Earth. He thinks weather is such an integral part of everyday life that he would value the position of analyzing it. In his eyes science in general is something that should have more focus in a lot of people’s lives. It holds so much power that he feels like it is being underutilized on a global level.

Carol Phan is a general studies major at UAFS. This major is intended for students who are uncertain about their major. Choosing this major allows her to be exposed to multiple fields of study at once in hopes of finding a field she enjoys. While enrolled as a general studies major, she gets to complete her general education courses as well as elective courses. Now Carol is enrolled in courses ranging from STEM courses to Humanities courses. She hopes that the variety of her courses will help shape her view on what she wants to major in. Optimistic for the future, Carol intends to transfer with her general studies major into a field of study that she is passionate about.

Gary Johnson is pursuing a major in geology at UAFS. His reasoning for choosing an interest into science was established at a young age. Becoming an Eagle Scout gave him the confidence to pursue a degree in geology. He struck gold becoming a student at the UAFS and being able to pursue a degree where not only the student body cares, but the faculty is fully invested in seeing each student succeed to the highest level. His experience in field work is strong with a background in lawn care and love for nature.

Manuel Benavides, a graduate of Roland High School, is attending UAFS to pursue biology. Currently a junior, his more recent interests are nutrition and histology. His hobbies include working out, gaming, and spending time with friends. Another aspect of him is his current career in the Arkansas Army National Guard, in which he spends his time in Alpha I-142nd at Fort Chaffee. As a side job through the National Guard, he spends his time being in the Arkansas Military Funeral Honors, performing services such as flag folding, playing Taps, and presentation for recently passed veterans or those that were currently serving in all of the Northwest Arkansas area.
Trend and Change Analysis of Monthly and Seasonal Temperature Series Pertaining to Fort Smith, Arkansas
Presented by Herman Meashintubby, Julia Mathews, Ian Hattabaugh, Randall Pulis, and Elise Godfrey
Faculty Sponsor: Dr. Dave Mayo
Table 17

To better understand the amount of temperature variations in Fort Smith, AR, we have documented data from the Fort Smith Regional Airport (FSM) for the years 1988 through 2018. By taking the daily temperature and comparing it to the monthly average, we are marking extreme temperatures with five to ten degree variance, when compared to the monthly average. Our original hypothesis is that with the increase in global CO2 ppm, there would be a higher number of extreme temperatures for more recent years as opposed to earlier years. When graphing the data, we have analyzed it to see if the rise in temperature anomalies correlates with the rise in global CO2 in ppm. Our analysis has found that unlike our original hypothesis the amounts of extremes outliers has decreased greatly while the average temperature has increased within the thirty year data set. This could be because the amount of extreme outliers are not increasing but rather becoming the new average temperature.

Herman Delaine Meashintubby Jr. is pursuing his bachelor’s in geoscience. He is the vice president of Geology Club with plans to graduate in May 2021 and pursue his doctoral degree in environmental science.

Julia Manami Mathews is a second-year biology student at UAFS. As an undergraduate she hopes to learn and better understand the environment and the life living within it. Her interests are in aquatic biology, environmental science, and art.

Ian Hattabaugh is currently working towards a major in psychology and a minor in philosophy. He has lived in Fort Smith his whole life but he hopes to attend graduate school elsewhere. Ian attended Southside High School where he took an oceanography class which first sparked his interest in climates and oceans.

Randall Pulis is a student at UAFS studying for a biology degree. His interests lay in the morphology and animal conservation aspects of the field. With this degree he is hoping to go into the medical field to become a general practitioner.

Elise Godfrey is a student at UAFS majoring in biology with a focus in wildlife. She is wanting to use her degree to work as a wildlife biologist. She’s interested in animal behavior and working in conservation.
Analysis of Proposed Meteorites Using X-ray Diffractometry
Presented by Colton Johnson, Sean Tait, Kialey Wainwright, and Micah Weaver
Faculty Sponsor: Dr. Dave Mayo

Table 18

Geochemistry students at the University of Arkansas Fort Smith conducted X-ray diffraction (XRD) analyses on six rock samples, proposed to be meteorites, from a collector in Fort Smith. Some of the samples were too small for analysis, thus composites were made in these cases. Only a few hundred out of more than 4000 known minerals have been found in meteorites, including oxides, phosphides, and silicates, along with high concentrations of iron, nickel, and carbon. Diffraction of x-rays is a reliable method of mineral identification, because their wavelengths are similar to the atomic spacing in minerals and each mineral has a unique diffraction pattern. Minerals identified in the proposed meteorites include aluminum chromium oxide, indium phosphide, silica (SiO2), calcite (CaCO3), goethite (FeO*OH), geikielite (MgTiO3), pyrite (FeS2), and hematite (Fe2O3). With the exception of calcite, this mineral assemblage does not preclude a meteoric origin for these samples. The presence of goethite, pyrite, and hematite is consistent with the high iron content of known meteorites, but suggest that if these are meteorites, extensive terrestrial weathering has occurred.

Colton Johnson is a 21-year-old geoscience major who loves the outdoors and the environment.

Sean Tait is a 26-year-old geoscience major who enjoys general outdoor activities (provided the weather is nice). His love of the outdoors goes hand in hand with his degree program, as geoscience tends to have a lot of outside work involved.

Kialey Wainwright is a geoscience major at UAFS. Family, friends, and anything outdoors are the ways she loves to spend her time.

Micah Weaver is a 19-year-old freshman geoscience major at UAFSh. She spends her time reading and watching movies and also enjoys spending time with family and friends.
Examination of an Alternative Method of Opal Synthesis
Presented by Amanda Key
Faculty Sponsor: Dr. Dave Mayo

Table 19

Opal is a hydrated amorphous form of silica, SiO2 with water content ranging from 3% to 21%. Opal is composed of tiny particles of silica and due to its amorphous state, it is considered a mineraloid instead of a true mineral. The two classes of opal are precious and common, which can be visually differentiated. Precious opal displays “play of color” - a rainbow effect produced by the diffraction of white light by an orderly arrangement of tiny silica particles. Common opal does not display this rainbow effect and is usually solid in color. The arrangement of the silica particles is not ordered, and light is not diffracted symmetrically like precious opal. Finding ways to synthesize opal in the laboratory are ongoing, with robust synthesis strategies such as the Stober and Gilson Methods. Both methods utilize tetraethyl orthosilicate (TEOS) to produce uniform sized silica nanoparticles. The particles are typically arranged, dried, and hardened. In this study, an alternative synthesis method utilizing commercially available silica crystals and an electrolyte mix was employed to synthesize opal. Samples will be analyzed using X-ray diffractometry to determine the crystalline phases, if any, and compare those findings to opal synthesized using the Stober method.

Amanda Key is a student in the Physical Sciences Department pursuing her undergraduate degree in geoscience. She is the president of the Geology Club and also an active member of the Non-Traditional Student Organization. She plans to graduate in May 2020 and pursue a doctoral degree in geoscience education.

Petrographic Analysis of the Smackover Formation in Southern Arkansas
Presented by Marcus Schneider
Faculty Sponsor: Dr. Maurice Testa

Table 20

The Smackover Formation in Southern Arkansas is an organic-poor, carbonate-rich mudrock with siliciclastic intervals. Because of the high presence of total organic matter (TOC), most research conducted on the Smackover focuses on samples in Mississippi and Alabama. Little work has been conducted on the Smackover Formation in Arkansas because it is considered a poor oil and gas producer. The purpose of this project is to conduct a petrographic analysis of the core samples collected from multiple wells in Southern Arkansas. The thin sections were analyzed for porosity and facies type. The thin sections were also analyzed for pyrite frambooids, intraparticle porosity, and detrital quartz grains. Fossil evidence such as foraminifera were also identified. The data collected was used to create a stratigraphic chart based on thin section composition and a generalized porosity map throughout the cores analyzed.

Marcus Schneider is a senior scheduled to graduate in May 2019 from UAFS with a bachelor’s in geoscience and will be presenting his research at the Sectional Meeting of the U.S. Geological Society in Manhattan, Kan., this March. He hopes to attend graduate school in pursuit of a master’s degree in geology with a focus on petroleum exploration.
An Analog Comparison Between the Pahrump Hills, Gale Crater, Mars to Volcanogenic Fluvial-Lacustrine Environment

Presented by Michael Gatewood
Faculty Sponsor: Dr. Maurice Testa

Table 21

As more scientific data is collected on Mars, there is an increasing need for comparable analogues on Earth. The purpose of this project is to create analogues that aid in a better understanding of geomorphological sources of the structures and minerals observed on Mars. The site on Mars chosen for this study are the Pahrump Hills of the Gale Crater. The Pahrump Hills are composed primarily of mud and sandstones deposited in a lacustrine environment with a basaltic origin rich in plagioclase, augite, and hematite, with noticeable amounts of alkali feldspar, orthopyroxene, pigeonite, magnetite, and forsterite. A potential site for an analogue to the Pahrump Hill’s paleoenvironment is the Scandinavian country of Iceland. The potential viability of Iceland, as a source for comparisons to Mars volcanogenic fluvial lacustrine environments, is primarily due to the trachybasalt origin of their rocks coupled with fluvial and lacustrine processes occurring today. Thus Iceland, particularly around the Vatnajökull ice cap, provides examples of volcanogenic fluvial–lacustrine terrains, deposits, and environments where the crust and sedimentary parent material are akin to Mars basaltic composition.

Michael Gatewood is a senior at UAFS and is currently pursuing a Bachelor of Science in geoscience. He is planning to graduate in May 2019 and continue on to graduate school to pursue a Ph.D. in planetary science.

History and Current Status of the Inca Dove (Columbina inca) in Arkansas

Presented by Ethan Brooks
Faculty Sponsor: Dr. Ragupathy Kannan

Table 22

The Inca Dove (Columbina inca) was a bird of the southwestern United States, but has rapidly expanded its range in recent decades. It first appeared in Arkansas on 26 October, 1968, in Saratoga, Howard County. Since that appearance, the statewide distribution has expanded to include 39 of the 75 counties. With the use of citizen science databases eBird, AR-Birds, Christmas Bird Counts, and Breeding Bird Surveys, we determined that the Inca Dove is expanding its range in Arkansas at an average rate of about one new county every seven years and one new yearly encounter every two or so years. Inca Dove numbers from Christmas Bird Counts show a weak linear increasing trend, indicating an encounter rate of approximately one bird every 50 party hours in the state. This is about the average for the last decade. Our findings strongly support a revision of the overall range map for the species. We also call for increased monitoring of similar bird populations that are expanding poleward in range, in wake of recent anthropogenic global warming.

After living in Sallisaw, Okla., for all his life, Ethan Brooks decided to attend UAFS to earn a Bachelor’s degree in biology. He hopes to work for the Fish and Game Department as a field biologist.
Isolation and Purification of Myeloperoxidase from Equine Blood
Presented by Phuc Phan
Faculty Sponsor: Dr. Jeremy Durchman

Table 23

Neutrophil myeloperoxidase (MPO), a polymorphonuclear neutrophils enzyme (PMN), participates primarily in the destruction of microorganisms at infection sites, resulting in inflammation that, when excessive, can damage processes of neighboring tissues. Here we report the development and implementation of a simple, economical lab protocol to isolate and purify MPO from horse blood on the campus of a primarily undergraduate institution. With implementation of purification protocols at UAFS, additional kinetics studies of MPO enzyme can proceed for both research lines of questioning and teaching purposes. In order to purify MPO, PMN pellet was harvested from whole blood samples and were digested using surfactant CETAB and centrifugation to collect MPO from PMN. The protein was purified via column chromatography, with fractions analyzed via UV-Vis spectrophotometry. The sample was subjected to SDS-PAGE electrophoresis to confirm protein abundance and relative purity, showing gel bands corresponding to the appropriate 120-150 kD range. Further experimentation to confirm MPO identity is planned to confirm successful development of a protocol to isolate and purify MPO economically at UAFS for future scientific exploration.

Phuc (Peter) Phan was born in Ho Chi Minh City, Vietnam. He is a junior seeking a bachelor’s degree in chemistry-biochemistry at UAFS with a minor in psychology. He is interested in proteins and their fascinating properties as well as other fascinating toxins from the animal kingdom and their potential medical and pharmaceutical applications. He plans to attend graduate school after graduation and pursue a graduate degree in biochemistry.
The Ambulance Microbiome
Presented by Wesley Partin
Faculty Sponsor: Dr. Luis A. Murillo Cortes
Table 24

Healthcare facility microbiomes contain diverse bacterial, fungal and viral pathogens that contribute to an estimated 1.7 million healthcare associated infections (HAIs) a year. The ambulance is a critical chain in the healthcare system, however little is known about EMS biosafety risk factors and the epidemiological role it plays in the transmission of pathogens into the healthcare sector as Nosocomial Infections. Therefore, it is important to characterize the microbiota present in an ambulance and the role they play in the transmission of HAIs. In a previous study we found that through swabbing surfaces within the ambulance, we were able to culture dozens of colonies of a wide variety of organisms, with little effort. Analysis of the cultures was performed using multiple methods, however the full microbiome was not able to be characterized and the species identified due to culture bias and limitations in identifying cultured bacteria. The purpose of this study is to identify the entirety of the bacteria present within an ambulance by swabbing multiple surfaces, DNA isolation, amplifying the 16S rRNA genes and sequencing them for the identification of each species. A total of 24 samples will be analyzed in order to fully categorize the ambulance microbiome.

Wesley Partin is a senior biology major currently in his second semester doing undergraduate biomedical research. Last semester he assisted in a project analyzing soil microbiomes present here on the UAFS campus. He also carried out his own research in which he cultured bacteria from within a full-time 911 ambulance. He is a nationally registered paramedic with three years of full-time experience and continues working on a part-time basis while completing his degree. As a biology major and paramedic, he has an interest in the microbes present within an ambulance and the impact they play on patient care. The undergraduate biomedical research class instructed by Dr. Jeff Shaver last semester gave him an opportunity to perform research in this area, and with funding through the Arkansas INBRE foundation he is able to perform DNA sequencing this semester in order to further his research.

Wide-Ranging Effect of Arsenic-Poisoned Groundwater in Bangladesh
Presented by Katie Harrison
Faculty Sponsor: Derek Goodson
Table 25

At one time the people of Bangladesh relied on surface water to get their drinking water but people began contracting illnesses and life-threatening diseases from bacteria that grew in the surface water supply. Because of this people dug wells and made groundwater their main source of water. However, in 1990 it was discovered that the groundwater in Bangladesh was contaminated with a metalloid element called arsenic. This research presentation will address the severity of ingesting large quantities of arsenic-poisoned groundwater as well as discuss the effects on vegetation and animals.

Kathryn Harrison is a sophomore in the Myles Friedman Honors Program. She is finishing up her Associate of Applied Science in the computer graphic technology program with a concentration in architecture. After she graduates in May of 2019, she will go on to get her Bachelor of Science in Organizational Leadership.
Probing of Binding of Pesticides Environmental Pollutants on Human Serum Albumin Using Molecular Docking
Presented by Zane Kee
Faculty Sponsor: Dr. Archana Mishra

Table 26

Toxicological risk factors of pesticides environmental pollutants (PEPs) including cellular and DNA damage, cancer risks, and human death necessitate the need to fundamentally investigate the interaction of PEPs with biologically relevant macromolecules. This study investigated the binding behaviors and molecular interaction of 32 different PEPs (11 herbicides, nine insecticides, and 12 fungicides) of varying molecular sizes and structural complexity on human serum albumin (HSA), a promiscuous and the dominant serum protein responsible for the transportation of hormones, drugs and metabolites using a molecular docking (MD). Specifically, the binding affinity and binding site of PEPs with HSA at physiological conditions using MD was investigated. PEPs ligands at were docked onto three different crystal structures of HSA to account for inherent flexibility of HSA subdomains, which could have not been captured by docking onto one crystal structure of HSA. However, the MD procedure was limited to HSA binding site I, II and III. The MD was performed using an Autodock Vina program. The calculated binding affinity and binding site of the investigated PEP with HSA is PEP dependent. In general, most PEP ligands bind strongly with HSA at binding site I. However, some PEP ligands with aromatic bind with HSA at binding site III. Interaction of PEPs with HSA can be facilitated via non-covalent bonding, hydrophobic interaction, and Pi-Pi stacking aromatic ring on HSA hydrophobic pocket. However, other factors including hydrogen-bonding formation may promote the interaction between PEPs with HSA. Overall, binding affinity of PEPs with HSA ranged between 1.9 mM for Methamidophos and 90 nM for β-cyfluthrin, demonstrating low to moderate binding affinity of PEPs with HSA. The result of this study can potentially inform effective design for site-specific therapeutic agents in pharmacological research for designing anti-PEPs poisoning therapies.

Zane Kee is a Gates Millennium Scholar through the American Indian Graduate Center. He is a decedent of the Dine (Navajo) and the Tsalagi (Cherokee) tribes, which are the two biggest tribes in America. He has been at UAFS for two years now and will graduate in May 2019 with my bachelor’s in general chemistry.
A 24-year-old Caucasian male presented to the emergency department with testicular pain. While he was admitted, the doctor ordered an ultrasound, and it concluded that the patient did have testicular cancer. The initial ultrasound demonstrated a large vascularized complex mass in the right testicle, which was believed to be a non-seminoma germ cell tumor diagnosable only through orchiectomy. The patient is within the typical testicular cancer population; age: 20-39, Caucasian male, with prominent testicular cancer symptoms of: (a) pain, (b) discomfort, and (c) swelling or lumpiness of one or both testicles. The discussion of the subjective data, objective data, assessment, and planning of the patient’s testicular cancer were used to evaluate this case study. Typical protocols and methodologies for diagnosing and treating the various types of testicular cancer were examined. The patient did not proceed with any treatment after the initial diagnosis, resulting in an increase of testicular cancer symptoms and a major growth in the mass several months later. The lack of treatment and late diagnosis is detrimental to a patient’s life and quality of life when dealing with any type of cancer, and it is important to understand the significance of staging testicular cancer and the consequences of inactive treatment.

Jessica Gonzalez is a 24-year-old from Green Forest. She graduated from North Arkansas College in Harrison. While attending there she obtained her Associate of Applied Science in radiologic technology. She is currently attending UAFS to complete her Bachelor of Science in diagnostic medical sonography.

Courtney Yandell is from Mansfield and is a licensed radiologic technologist with ClearView Digital Imaging, currently continuing her education in diagnostic medical sonography. She enjoys life with her husband and their dog, Cookie. Courtney demonstrates a passion for people, which is evident in her love for her family, friends, and patients. She is excited about her career in medical imaging and looks forward to utilizing all of her job and real-life experience to be the best sonographer she can be. Courtney is a member of the 2018 Arkansas Society for Radiologic Technologist Quiz Bowl championship team.
Thyroid nodules are an increasing clinical issue. Before the introduction of imaging, thyroid nodules were only known to occur in about 5-10 percent of people. Today, with advanced technology such as the availability of medical imaging, the percentage of thyroid nodules has increased to 20-60 percent. In 2008, the Bethesda system for reporting thyroid cytopathology (BSRTC) was released. These new guidelines are used currently to help determine the diagnosis of disease on a cellular level and group each nodule in one of six categories. The case study discussed in our research briefly explores the Bethesda categories I-VI, and specifically a category V palpable thyroid nodule found in a 17-year-old female. The patient reported the palpable area appearing on the left side of her neck within a time frame of a few weeks. Ultrasound images were taken and the mass measured 5.1 x 3.6 x 2.6cm. A fine needle aspiration tissue biopsy was performed resulting in a Bethesda category V nodule, which is considered suspicious for malignancy. This is a rare category, with a risk of malignancy of 65-75 percent, and extremely rare when discovered in children.

Christian McVey was born in Fayetteville but grew up all over the United States because his father was in the Army. His father retired in 2012, allowing him to return to Arkansas where he was able to graduate from Van Buren High School in 2014. After high school he obtained an Associate of Applied Science in radiography at UAFS. Currently Christian is furthering his education by pursuing a Bachelor of Science in diagnostic medical sonography at UAFS. He plans to pursue a career in vascular sonography or mobile imaging after he graduates.

Madison Trees is from La Vernia, Texas. She is a senior UAFS cross country student-athlete. Once she graduates from the sonography program, she plans on getting a job at a hospital in Northwest Arkansas so she can pursue her dream of buying a golden doodle.

Devon Ratterree is a UAFS diagnostic medical sonography student from Greenwood. She graduated from the UAFS radiography program in 2018 and currently works at Baptist Health Fort Smith as computed tomography (CT) technologist. Once graduating the diagnostic medical sonography program in 2020, Devon hopes to pursue a career as a sonographer in Northwest Arkansas.
Raynaud’s Phenomenon: A Study of Triggered Vasopastic Ulcers of the Digits
Presented by Kate Shepherd and Katie Craft
Faculty Sponsors: Brandy Weidman and Alisa Cole

Table 29

Raynaud’s is a common ischemic medical condition that results from vasospastic occurrences in the fingers and toes of those with the condition. Although it is most common in females, Raynaud’s can be present in males as well. This phenomenon can be triggered by a number of causes including: climate changes, stress, anxiety, medications, and arterial disease. Raynaud’s can be subdivided into two categories: primary and secondary. Signs and symptoms vary between the two classifications, however, both types have the following common characteristics, which affect the digits of hands and feet: pallor, blisters, and ulcers. The case of a 22-year-old female who presented for evaluation of re-occurring ulcers to her distal fingers. She reported a history of Raynaud’s syndrome and stated that in the winter she is susceptible to ulcerated sores. Interventional studies have been conducted in attempt to provide relief to the population affected by Raynaud’s. Calcium blockers, vasodilators, Botulinum Toxin, and various intravenous treatments are among those used to treat Raynaud’s. The ability to incorporate doppler ultrasound makes sonography a useful modality to aid in the diagnosis of Raynaud’s and to differentiate between primary and secondary syndromes.

Kate Shepherd is a student in the diagnostic medical sonography program who will graduate in May of 2020. She works full time at Medexpress while pursuing her degree and caring for her 2-year-old daughter, Jennings Claire. Kate has always had a passion for medical sciences and for people. She hopes to one day help others reach their diagnosis while also giving compassionate and thoughtful care.

Katie Craft is a 22-year-old from Charleston. She graduated from Charleston High School in 2015. She has attended UAFS since the fall of 2015. She obtained a degree in radiography in July of 2018 and has been working for a mobile X-ray company since August 2018.
The Benefits that Video Games can Provide

Presented by Christopher Haley
Faculty Sponsor: Dr. Argie Nichols
Table 30

I wish to prove that video games can be a positive influence and can be beneficial to those that play them. I will be researching the positive effects video games can have for the people that play them by searching for various online sources and articles about how playing video games can be good for you.

Video games can be good for a person’s mental, social, and physical well-being. The game series “Dark Souls”, a game series well known in the video gaming community for how often players tend to die due to its difficulty, has been shown to be helpful in dealing with depression and anxiety in those who play it. The mobile phone game “Pokemon Go” encourages people to go outside and walk about with others, which helps them to get exercise as well as be more sociable, and to get around and explore their surroundings more. Many of the games that have online features, such as “Halo”, “Call of Duty”, and “Overwatch” involve a lot of team matches, where players need to work together to achieve a goal, which helps to build team work skills. The puzzles that players often need to solve in games also help to exercise their problem-solving skills.

Christopher Blake Haley, who goes by his middle name, was born in Fort Smith at Mercy Hospital on April 19, 1992. He was born seven weeks early and weighed a whopping eight pounds. For most of his childhood he lived in Booneville. He had a love of art from the beginning of his life. As a child he loved to make sculptures, play outside, and also play video games. When his parents divorced and his mother remarried, he moved away from Arkansas to live in Kentucky, and a year later he moved to California. Blake loved living in California, where his school sat near a cliff overlooking the ocean. In California, due to the lack of humidity, his asthma did not bother him as much, so he was able to play football. He stayed in California for about five years before moving back to Arkansas near his family.
Dance Training Benefits for Special Needs Children, a Literature Review
Presented by Van Huynh
Faculty Sponsor: Lenora Valdez
Table 31

The Education for Persons with Special Needs (EPSEN) Act, 2014, recognizes special educational needs that may arise from four different areas of disabilities: physical, sensory, mental health, and learning disabilities. While there is much research that shows the tremendous benefits of dance training for children with special needs in general, there is a limitation of research to show how children with a specific disorder can benefit from dance training. In this study, the author used the University of Arkansas at Fort Smith (UAFS) library database and Google Scholar in order to find out how much research has been done to identify the benefits of dance training for certain disorders that contribute to each area of disability (e.g. Down Syndrome, autism, etc.). The author conducted a literature review to determine the extent of research studies on the benefits of dance therapy for specific disabilities or disorders. The results indicated that research on the benefits of dance as therapy for children with special needs is still very limited and further research is needed.

Van Huynh is a senior I-level nursing student in the Bachelor of Science in Nursing program at UAFS.

The Little Nightingale: An Inside Look into the Life of Child Star Joselito
Presented by Zabdiel Montes
Faculty Sponsor: Dr. Alexandra Zacharella
Table 32

Born in Beas de Segura, northeast Andalucia in Spain, José Jiménez Fernández (b. 1943) was a child singer and film star in Spain during the 1950s and 1960s known as Joselito. He gained the nickname “The Little Nightingale” when he starred in his first feature film *El pequeño ruiseñor* (1957) at the age of 13. He was first discovered by Luis Mariano, who brought him to France to perform. Joselito found much success in Spain, Europe, and even America, but like many other child stars, suffered in life. Being forced to keep his childlike image up until 1969, when he had reached his mid-20s, his voice began to fail him, and he faded out of the public eye.

This poster will explore Joselito’s career in film, as well as his singing vocal styles, techniques, and intricacies within it. This paper will also explore Joselito’s vocal style and its potential benefit to instrumental music, specifically trombone, repertoire. The sheer skill of Joselito’s voice is exemplified by his use vocal trill and vibrato in his singing, as well as the range and overall tessitura of his voice. This style of singing can be applied to very lyrical and beautiful playing for instrumentalists.

Zabdiel Baldomero Montes is a junior instrumental music education major at UAFS. He is currently a member of the UAFS Symphonic Band, Jazz Band, and Athletic Band. He serves as the NAfME president for the Student Music Educators organization. He has held positions in the Arkansas All Region concert and jazz bands from 2012-2016, as well as a member of the Arkansas Intercollegiate Band. He is an honors graduate of Northside High School, an Arkansas Scholar, and a recipient of the Patrick S. Gilmore Band Award. He was the drum major for the Grizzly Northside Bands from 2014-2016. During this time he had the honor of performing with former President Bill Clinton and the Fort Smith Bordertown Bones and has also lent his musical talents to the Northside Theatre and Fort Smith Little Theatre. He enjoys arranging and composing music.
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