

2023 SCARF

Student Creative Arts and Research Forum

Organized by the Order of the Tartans Chapter of the Mortar Board Honor Society

LIST OF ABSTRACTS

ORAL PRESENTATIONS

Session 1

1. The Unspoken Effects of Parasocial Relationships

Brad Smith, Matthew Lebrato
Lyon College

The project's purpose is the research the unspoken effects of parasocial relationships. This research primarily focuses on how harmful parasocial attachments can be to the recipients and delves into potential danger for younger generations with the rise of younger media stars. Many influencers individuals have fans that develop an attachment to the influencers that cause many detrimental effects to the recipients. These fans not only see their actions as acceptable but also view their actions as justified due to their nature of being fans. Individuals affected by this range from megastars such as Chris Pratt to streaming icons such as Amouranth. Sleep deprivation, PTSD, breaking and entering, death threats, and racism are only some of the problems that occur from this harmful relationship. Future concerns arise from this problem with the modernization of the world. Young influencers and stars can now be exposed to this treatment at a younger age and in greater quantities due to the advancements in technology. This problem needs to be raised as the potential harm can only increase.

2. Batesville Motor Raceway

Austin Trimble, Jackson Beck, Bosco Pery, Kenny Couch, Angela Buchanan
Lyon College

Batesville Motor Raceway (BMR throughout) is an inclusive and enjoyable experience for people of all ages that will create special memories for all people alike; BMS has a one-story go-kart track and features like top-of-the-line concessions, and arcade games.

3. Gender and Art Nouveau
Caledonia McIntier, Dustyn Bork
Lyon College

Alphonse Mucha was born in 1860 in the Czech Republic, though he is most famous for his Parisian works. The embodiment of the Art Nouveau period, his posters and other works have long been admired. From jewelry to furniture, from paintings to his iconic posters, Mucha's works define the Art Nouveau style and serve as visual proof of the thoughts and feelings of the time. It is through his works that we are most easily able to explore ideas of femininity and feminism circulating in the early 1900s. His works both reflect and encourage the changing roles of women and new-wave feminism.

4. Amino- and amidonaphthoquinones lead to new lung cancer therapeutics
Nikkolette Perkins, Lola Beeser, Rachel Tyler, Irosha Nawarathne
Lyon College

Each year, more people die of lung cancer than of colon, breast, and prostate cancers combined. Since the 1980s, it remains the most common cancer in terms of mortality in the United States with an estimated 130,180 deaths in 2022. Despite worldwide efforts for cancer prevention, diagnosis, and treatment, the need for new lung cancer medicine is clear and pressing. Naphthoquinones, both naturally occurring or created, possess a wide range of activities, including anticancer properties. The naphthoquinone structures have high oxidate species properties, representing the challenge to develop clinically relevant anticancer molecules. Any modification to the naphthoquinones has to be designed carefully, by adding nitrogen and oxygen, both highly electronegative atoms. Adding these atoms guarantees new structures. We have created a wide array of new biologically significant aminonaphthoquinones containing a multitude of different functional groups. Some of these functional groups were then modified more using click chemistry to create triazoles. Triazoles, an organic functional group, are great additions to create biologically active molecules. After the products were purified, they were then tested against Lewis Lung Carcinoma (LLC) cell lines in cell viability assays to determine their effectiveness against lung cancer cells.

Session 2

1. Scottish Witchcraft and Enlightenment

Alexis Marley, Alexis Baldacci
Lyon College

Scottish witchcraft studies is a highly developed field, yet gaps in the literature exist, and to this day misconceptions are present in modern understanding. One such misconception, sustained by modern historians and Scottish Enlightenment thinkers alike is the idea that Enlightenment beliefs, such as rationality and new ideas on civility, caused both peasant and elite circles to dismiss witchcraft as superstition rather than a threat to society. However, analysis of legal codes and narratives of religious leaders and contextualization of these sources within the broader English-Scottish conflict that eclipses most of Scottish history reveals that belief in witchcraft did not evaporate from the minds of all Scottish citizens. Instead, although witchcraft legislation significantly shifted during the Scottish Enlightenment, this was met with resistance from members of elite factions and the wider public, who were still very convinced that witches and the practice of witchcraft were a significant threat. In light of this, this paper finds that witchcraft legislation shifted because of the effects of the Enlightenment on England and their increased influence on Scotland coincided with the Enlightenment.

2. Chanthropology: Interactions Between Internet Micro-Societies and Real-World Politics

Owen Phillips, Matthew Lebrato
Lyon College

In Fall 2022, I conducted research on the culture on web forums, mainly the infamous 4chan imageboards, in order to understand how a relatively niche and insular community managed to kickstart Qanon and indirectly cause an attempted insurrection. I studied the culture of 4chan and similar websites in a variety of ways, including participatory research via discussions on a subforum of 4chan. I found the answer to my question in two parts. Firstly, the way in which websites are structured, specifically in rules around user identification, can create vastly different user cultures by changing the social norms surrounding disagreements between users. 4chan has developed a culture in which it is impossible to distinguish between sincere and ironic expressions of fringe ideology, creating a haven for extremists. Secondly, Qanon's rise to prominence was due to an accidental synergy between increasingly common Republican political strategies, in which conspiracy theorists are treated as legitimate to discredit opponents, and traditional 4chan "baiting" and "shitposting" via complex or absurd lies to trick or annoy users. In this clash of cultures and political climates, new users encountered spurious claims about Donald Trump's fight against shadowy enemies, which veteran users ignored, and took them at face value.

3. Hovering is Not Helping: Relationships Among Overparenting, Attachment, Academic Outcomes, and Mental Health in College Students

Cindy Rainbolt, Robert Miller
Lyon College

Overparenting is characterized by developmentally inappropriate practices in which parents are excessively controlling and overinvolved. Research has shown relationships between overparenting and lower levels of self-efficacy in young adults, conceivably due to parents' infringement on children's autonomy. In the current study, we sought to develop the literature on attachment and overparenting among college students while also examining relationships between overparenting and important mental health and academic outcomes. The 136 student participants were compensated with course or extra credit. Participants completed measures of perceived overparenting and attachment to their mothers, fathers, and closest friends. Respondents also self-reported their academic motivation, self-efficacy and internalizing symptoms. Results showed paternal overparenting was significantly positively associated with more insecure paternal attachment, such that young adults were more anxious and avoidant in the relationship. A positive relationship was also found between maternal overparenting and insecure attachment such that young adults were more anxious and avoidant in this relationship, as well. Results also revealed only maternal overparenting was significantly associated with greater depression and anxiety and lower academic self-efficacy. While overparenting is generally well-intentioned, the results suggest that overparenting's negative effects on adult children's wellbeing may outweigh the perceived benefits.

4. From Pianos to Paper to Pixels

Rebekah Garcia, Dustyn Bork
Lyon College

This oral presentation will present my art pieces wherein I listened to music, and translated an auditory experience into a visual experience. This was a project in my 2-D Design class in the Fall of 2022 and began when Dustyn Bork gave an assignment that involved us exploring line. It was an individual project where I worked alone. I present my process that begins with asemic writing on ink and paper, followed by converting it into a digital piece by using technology to scan, crop, distort and manipulate images that were previously only physical. My presentation begins with a conception and follows my journey all the way to my end result. I will use my own work as an example of how artists can combine two mediums that stretch from paper to pixels. The 21st century has changed art and introduced genres and methods that were previously impossible. While there are some traditionalists that resist using technology as a tool, I argue for the usefulness of using it in conjunction with art to explore new realms of art.

POSTER/DEMONSTRATION PRESENTATIONS

1. Gaze Aversion and Intentionality in Gorillas

Bailey Barnard, Brittany Florkiewicz

Lyon College & Little Rock Zoo

Gorillas communicate through gaze, known as social staring. Many important visual signals and social information can arise from the face, such as gender, age, familiarity, emotional expression, and intentions. Primates are always navigating complex social landscapes, such as gathering information from and about others, competing with others for food and mates, and cooperating to obtain rewards. However, gorillas do display pronounced gaze aversion, meaning they tend to not use gaze to communicate. The goal of my research project was to examine gaze-directed behavior, specifically gaze aversion, in captive gorillas (*Gorilla gorilla*). My study took place at the Little Rock Zoo with a captive troop of 4 gorillas (which included three females and one silverback male). I gathered my data using the all-occurrence method (Altmann, 1974). I created an ethogram based on a previously established ethogram for gorillas (Schildkraut, 1991). Data were put into R, where I ran a Pearson's Chi-Squared test, as well as created a social network model in order to visually demonstrate gaze aversion interactions between each primate, which measured closeness, betweenness, and page rank I hypothesized that females were significantly more likely to exhibit gaze aversion around the silverback than around other females. My hypothesis was not supported: females were just as likely to exhibit gaze aversion around other females, specifically Alice, when compared to the silverback. Understanding eye contact in gorillas is beneficial to humans because they avert eye contact more than any other primate. Understanding the reasoning behind such a simple movement that causes an unequally intense reaction could help us as humans understand our own eye contact behavior, and how that can affect our day-to-day life.

2. Effect of caffeine and point source discharge on Ozark aquatic insect communities

Isabella Beasley, Case Duren, Elliot Kemp, Eric South, Irosha Nawarathne
Lyon College

Our study aims to investigate the impact of point source discharge (PSD) on environmentally-sensitive aquatic insects, specifically mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) (collectively, EPT). The anthropogenic introduction of caffeine from PSD is of primary interest to our study. A previous exploratory study detected caffeine in local Ozark surface waters. However, the effect of caffeine on EPT community structure has not been documented in the literature. Habitat data, water samples, and larval EPT specimens were collected upstream and downstream of visible discharge pipes in Arkansas Ozark streams. Insect specimens were subsequently identified to the lowest possible taxonomic resolution in the laboratory. Shannon-Wiener and Simpson's diversity indices revealed no apparent patterns of diversity between upstream and downstream EPT communities. However, two genera of Plecoptera (the most sensitive of the EPT orders) were collected upstream the PSD in Pfeiffer Creek in Independence County, whereas no stoneflies were collected downstream the PSD where a considerably lower pH and degraded habitat were observed. A high-performance liquid chromatography (HPLC) method for caffeine detection in our collected water samples is currently under development.

3. Protein paradise

Jace Cameron, Chris Tackett, Jastan Burnes, Angela Buchanan
Lyon College

Batesville does not have easy access to both a high quantity and a high quality of supplements. The options that are available are low quality and generic. The Batesville fitness community is dwindling after covid and needs support they are not receiving. There is a considerable lack of supplemental experts and knowledge in Batesville that has negatively impacted the overall health and happiness of the community. Overall Batesville is in critical need of health knowledge and options.

4. Datamining News with Python

Jordan Deuley, David Sonnier
Lyon College

Searching for different news articles can be a time-consuming task, especially if you are trying to go to multiple websites at a time. With my project I have created a program in Python that allows multiple websites to be searched looking for a certain keyword and returning articles relating to it.

5. Synthesis and characterization of photo luminescent analogs of Cdc42 inhibitors

Colin Gopaul, Shouquan Huo
East Carolina University

Cdc42 is a small GTPase of the RHO family that can regulate signaling pathways that are involved in major oncogenic signaling pathways for both prostate and lung cancers. 3,5-Dihydroxy-N'-(2-(hydroxy)benzylidene)benzohydrozide (ZCL367) is a proven Cdc42 inhibitor which leads to the suppression of cancer development. To further understand the biological function of the Cdc42 inhibitor, we decided to develop luminescent probes for biological study so that the ligand binding and its biological activity can be tracked by various fluorescence spectroscopic techniques. In this presentation, we will report the design, synthesis, and characterization of a series of analogs of ZCL367, which bear a phosphorescent tag. The labeling of phosphorescent materials are based on highly luminescent cycloplatinated complexes. The phosphorescent tag has several advantages over a fluorescent tag such as a longer emission lifetime (in microseconds) and minimum interference by the background fluorescence in the biological system.

6. An introduction to Astrophotography

Blayne Griffin, Lawson Stockton, Stuart Hutton
Lyon College

We ponder the night sky and the secrets it holds. While we did not have much experience with telescopes and astronomy when initially starting out, we taught ourselves astronomy, how to use the telescope, and how to capture the beauty we saw. In order to accurately capture what we could see with our eyes, we taught ourselves how to build and use camera mounts, image processing programs, and the equatorial mount of the telescope. By using these methods, we could also apply astrophysics concepts such as the relative movement of celestial bodies. By varying the exposure of an image and keeping the camera focused on a specific body using the equatorial mount, we can determine the chosen body's movement vector.

7. Smart Mirror

Kim Ho, Aisha Mahmoud, Marcus Birkenkrahe
Lyon College

Technology is becoming more and more integrated into our daily lives. Humans use several apps on their phone/computer to help them throughout their lives; this includes checking the weather, creating to-do lists, checking the news, etc. What better way to integrate all this than to be able to look at such apps at a glance as you look at your mirror in the morning? We are using a Raspberry Pi computer to incorporate important widgets into a mirror for this exact purpose. We used our knowledge of coding as well as hardware to build this Smart Mirror project. It's interactive and customizable based on a person's wants and needs. It's a great device that has many benefits and can be a helpful tool for anyone.

8. Microplastic Concentration in Rural North Central Arkansas' Water Sources

William Howerton, Sabrina Lowe, Hannah Reynolds, Allison Byars,
Blayne Griffin, Ayden Heitmann, Irosha Nawarathne
Lyon College

Plastics are becoming increasingly pervasive in our environment in the form of micro- and nanoparticles. They are found in water, soil, air, food and wildlife and are considered a major pollutant in our ecosystem (Ivleva 2021). There are primary and secondary microplastics in the environment. Large plastic structures can deposit primary particles into the environment whereas secondary particles are usually a result of degrading of plastic structures because of the environment. Plastics are not prone to quick decomposition and can take up to a few thousand years to break down. Due to this problem, microplastics are taking a toll on the environment that needs to be analyzed further in order to find a solution (Lai 2022). Microplastic contamination in rural Arkansas water systems remains an under-researched area. We collected water samples from multiple sources in glass vials, and employed multiple analytical methods to identify and quantify the number of microplastics from each source. In rural areas with minimal human interaction we expect for there to be less microplastic contamination concentration compared with our more urban sources with frequent human interaction.

9. Biological Rocketry

Katherine Hunter, Taylor Mitchell, Braden Glenn, David Thomas
Lyon College

Model and high-power rocketry can be used to conduct scientific experiments. These experiments often make use of the payload section of the rocket, which can hold relevant instruments or specimens. During the summer of 2022, we made progress in our research with LADCAP (Launchable Automatic Device for Collecting Airborne Particles). LADCAP consists of a vacuum pump, which draws air through the side of the rocket and through a filter. The filter catches airborne microbes that can later be cultured. An onboard flight computer determines when LADCAP collects samples during flight. LADCAP collects high-altitude microorganisms called extremophiles which can withstand harsh temperature, low pressure, desiccation, and increased UV flux. The data collected about extremophiles on Earth can potentially be extrapolated to extremophiles in other locations, including other celestial bodies. This system can be used with a wide range of craft, but our air-testing this summer was conducted with the custom-built mid-power rocket, G-Lifter. The G-Lifter sustained damage on its most recent flight, so we plan to use our scratch-built high-power rocket, The Highlander, in future experiments. This research was supported with grants from the Arkansas Space Grant Consortium.

10. Akers Cinema

Brody Jeanes, Luke Jackson, Will Bolles, Jesse McGonigal, Angela Buchanan
Lyon College

Akers Cinema is a state-of-the-art drive-in theater which includes a breakthrough concierge service and a high-quality concession stand that will makes people's experience as smooth as possible and make them want to come back again and again. Our experience will be better than an indoor theater because our customers will be able to enjoy our concierge service and developed app straight from their phone that will allow them to only have to leave their car to use the bathroom. Our main goal for our customers is for them to do as little as possible and get the most out of their experience when they come visit Akers Cinema.

11. Volume Dynamics

Jacob Lawrinenko, Radek Szulga
Lyon College

Subject to time, almost every paradigm in our reality changes. This proposition holds even for a particular mechanic in financial markets. That is, the innate statistical relationship between market volume and price movement on a given day. The term price movement is used loosely here. Various papers have observed this phenomenon, utilizing daily return as the parameter for price movement. Since market volume is a large quantity, it is helpful to log-transform it. Price movement is expressed as the difference in a trading day's high and low. The statistical tool used is univariate regression with a data set observing two years of daily data. Generally, trading days with higher volatility (independent of positive or negative return) have higher market volume.

12. Cognitive Impairments and Autonomic Regulation in Young Healthy Volunteers with Chronic Migraine

Juliana Novakovic, Isabel de Oliveira Monteiro, Amanda de Oliveira Toledo,
Joel Sotero da Cunha Neto, Miguel K. Rodrigues, Maíra de Oliveira Viana Rela,
Mayron Faria de Oliveira
Lyon College & University of Fortaleza

Background: Migraines cause severe pain and affect cognitive abilities such as attention, memory, and processing speed. However, the impact of migraines on cardiovascular and autonomic functions in chronic migraine patients remains unclear. Objectives: Evaluate cognitive function and autonomic regulation in chronic migraine volunteers. Methods: A cross-sectional controlled study was conducted with migraine volunteers (migraine group) and healthy controls (control group). Personal information, self-assessment, cognitive tests (Stroop color, Addenbrooke's and reaction time test), attention recording (MindWave Mobile®), and heart rate variability (HRV - Polar V800®) were measured at rest and during cognitive tests. Results: Both groups had higher female participation (91%). During cognitive tests, the migraine group showed an increase in heart rate variability (LF - sympathetic nervous system) compared to controls. The Trail Making A Test showed that the control group performed significantly faster than the migraine group (34.9 ± 3.6 vs. 52.8 ± 7.6 sec, respectively). The TMA cognitive test had an increase in attention in the migraine and a reduction in the controls. The Trail Making B Test showed increased meditation in controls (9.01 ± 7.3) and a reduction in the migraine group (-11.1 ± 8.2). Conclusion: This study found changes in cognitive function and autonomic regulation in migraine patients compared to healthy individuals.

13. Concentration of Microplastics Analyzed in Coffee

Chase Orf, Abigale Brantner, Katherine Hunter, Braden Glenn,
Allison Mead, Devan Halford, Irosha Nawarathne
Lyon College

75% of the American population drinks coffee, and of those 75% about 50% of them drink one cup per day. How much do we actually know about what is in the coffee we drink? Microplastics are tiny plastic particles, less than five millimeters in diameter, that can enter our waterways, food, and bodies. There are two types of microplastics: primary and secondary. Primary particles shed from larger plastics like fishing nets or are intentionally created for products like cosmetics. Secondary microplastics are created when larger plastic products are broken down into smaller particles by exposure to sunlight or other environmental factors. In the course of the average day we will engage with many plastics some of which may present a source of microplastic contamination for our diets. We hypothesize that there are significant levels of microplastics in coffee, specifically brands with K Cups, plastic bags, and tubs of coffee. We plan to use a Keurig to run the K cups and then use a reusable K cup to filter the bagged and tub coffee. By using gas chromatography, mass spectroscopy, infrared spectroscopy, and a dissecting microscope to analyze the microplastics.

14. The Sudden Surge of the 1970s and the Brave New World of Medicine

Jessie Parchman, Andrew Yox
Northeast Texas Community College

Through the vast medical innovation, Texas inhabits a majestic healthcare presence. This is seen through the Texas Medical Center in Houston; the center is the largest conglomeration of medical care. On the other hand, the state's fantastic investment in modern medicine is improper with its history. The thesis of this research is Texas dramatized a "sudden surge" of medical coverage that occurred in the modern era, most notably in the 1970s. Texas amplifies an immense turnaround in outlooks towards medicine, particularly a mentality shift between "Aid of The Past Medicine" and "Aid for the Future Medicine". The state went from a medical backwater to a medical city. Past-Aid is older indoctrination that acknowledged historical correlations with a retained hoax practice. Future-Aid is exponential growth in societal healthcare and a belief that medicine is better than a compilation of past applications. Past-Aid Medicine is most notable through the 19th century from Native American integrated practices and translations into Texan society; soon, Texas physicians would be called "American Gentlemen". The start of the Future -Aid revolution was credited to the Pragmatic Era, which led to the steppingstone: Texas saw the greatest victory over the nation's worst disease and led to many revolutions.

15. ARTPROOF

Nate Poplin, Riley Hubbard, Ignacio Suarez, Angela Buchanan
Lyon College

The project is a part of the Senior Capstone class for the Business major. Here, we have to come up with a business or product that is innovative and entrepreneurial. Ours is ARTPROOF, custom soundproofing panels with art and other customization options.

16. Exploring Local and Global Environmental Sustainability Projects

Liam Selhorst, Case Duren, Paul Bube
Lyon College

For this project, we seek to help the Lyon community understand the viability of various green initiatives that could better the campus, state, country, and globe. Carbon emissions and pollution continue to grow at alarming rates while ecosystems and communities suffer. Through this project, we will examine how simple changes in the way people live can assist in making larger impacts and how these changes can scale to the global community. Humans greatly accelerated the climate crisis, and it is now our duty to preserve the planet as a whole for those we leave behind. We will begin with a narrow scope, focusing on what we can do on the Lyon campus and expand to the city, state, national, and global levels. We will emphasize the importance of community at each of these levels and how small efforts can make a big impact.

17. Development of Efficacious Rifamycin Derivatives by Utilizing Click Chemistry

Wyatt Treadway, Isabella Beasley, Braden Glenn, Jessie Parchman, Hattie Milligan, Jake Smith,
Daniel Armstrong, Irosha Nawarathne
Lyon College

In 1999, the World Health Organization estimated that one-third of the population had latent tuberculosis (TB) infection. This has since been updated to one-fourth of the world. The danger of TB is amplified by mutations that can result in antibiotic resistance. Long-term use or misuse of an antibiotic acts as a selection force for bacteria that are drug-resistant, which necessitates the development of new drugs. Rifamycin, particularly rifampicin, has been a mainstay of TB treatment since the 1960s; it binds the β subunit of the MBT RNA polymerase (RNAP) and blocks RNA synthesis. Amid the antibiotic resistance crisis, *Mycobacterium tuberculosis* (MTB)—the pathogen causing TB—has shown widespread resistance to rifampicin, making it futile in TB therapy as MTB RNAP mutations disrupt key interactions between the drug and the target. By utilizing the ‘enabling reaction’ of the rifamycin core and coupling it with click chemistry, we have exploited the thoroughly studied rifamycin scaffold to target MDR-TB and potentially treat other bacterial infections. Our work highlights the first report of synthesis, isolation, and purification of rifamycin derivatives with azido, alkyne, and triazole functionalities, the innovative products of coupling complex rifamycin chemistry and simple click chemistry.

18. Naphthoquinone Derivatives as Novel Lung Cancer Therapeutics

Rachel Tyler, Irosha Nawarathne
Lyon College

Lung cancer is shown to be the most common type of cancer worldwide both in terms of incidence and mortality. In fact, more people die annually of lung cancer than of colon, breast, and prostate cancers combined. The need for continued research toward anti-lung cancer therapeutics is clear and pressing. Based on previous literature, naphthoquinones and their derivatives have been shown to have anticancer, antiproliferative, anti-inflammatory, and antimicrobial properties. Naphthoquinones pose a challenge, though, in developing clinically relevant anticancer agents due to their overpowering ability of generating reactive oxygen species (ROS) in cancerous cells as well as in healthy cells. We hypothesize that to design new lead structures to treat cancer, naphthoquinones should be modified with highly electronegative atoms to modulate ROS generation through modified redox properties. In this research project, we have used naphthoquinone molecules and their derivatives as a scaffold by adding groups such as amino, azido, alkyne, and triazole groups. This is done with click chemistry and modified Michael addition followed by purification then analysis. One specific example I will highlight is the development of novel naphthoquinone triazole by combining 5-hydroxynaphthoquinone (juglone) with 3-azidopropylamine and cyclopentylacetylene. Cell viability and antibacterial assays are conducted and NMR spectrums are acquired outside of Lyon in collaboration with University of Arkansas for Medical Sciences (UAMS). Future directions include development of naphthoquinone derivatives with click and peptide chemistry and conducting of toxicology assays.

19. Immunolocalization of osmoregulatory proteins in Axolotl, *Ambystoma mexicanum*

Michael Uecker, Hannah Wu, Maryline Jones
Lyon College

Hydromineral balance regulation is a key physiological process influencing development, growth rate, and survival negatively when organisms are subjected to strong environmental stresses. Despite how critical these processes are, the mechanisms of osmoregulation in *Ambystoma mexicanum*, a vertebrate model extensively used to gain new insights about human physiology and pathology, have yet to be elucidated. This research project aims to use immunohistochemistry to determine which organs are involved in transcellular osmoregulatory mechanisms through the localization of osmoregulation proteins such as Na^+/K^+ -ATPase (NKA), the motor of osmoregulation, Cystic Fibrosis Transmembrane conductance regulator (CFTR) and $\text{Na}^+/\text{K}^+/\text{2Cl}^-$ cotransporter (NKCC). Larvae of axolotls as well as organs from juvenile and adult were sampled, fixed and embedded in paraplast blocks. Sections of 5 μm were performed and used for histological staining and immunolocalization. Involvement of organs in osmoregulation will be discussed during the presentation. To further our understanding, mRNA sequencing of the osmoregulatory proteins is in progress and will be used to quantify the expression of their transcript during ontogenesis.

20. Pitch and Putt

Zane Wallace, Calvin Hedgepeth, Lane McLevain, Andrew Pitts, Angela Buchanan
Lyon College

Batesville Pitch and Putt is an all-day activity for family and friends that includes food options, 2 styles of golf, big arcade with Ping-Pong and pool tables, and a bar full of beverages. We will offer around 3 acres of outdoor fun for all ages for Batesville and its surrounding area. Batesville Pitch and Putt will have 12 par 3 style golf holes and an 18-hole mini golf course for the golfers. We will also have an arcade and outdoor entertainment options like life size board games and TV screens with all the big games. For the adults of the family, we will have a full-service bar with appetizers to snack on.

21. Charcoal Drawings: Formed Under Pressure and Fueled by Fire

Ashlyn Winters, Dustyn Bork
Lyon College

I feel a constant pressure to succeed. It is something I have in common with my chosen medium, which is formed from pressure, but also fire. When creating my pieces, I represented this struggle, posing the following questions: I am growing up, so what do I need to let go of? What do I keep? Am I okay with an ever-changing existence? Can I release what is weighing me down? How do I fuel my own fire?

I do not have all the answers — I might never—and that is okay. Some questions are better left unanswered. This series is a part of me. The oil from my fingers binds the charcoal together to create a smooth blend and leave my trace embedded in the final drawing. My art is an extension of my existence and an outlet for my experiences. I knew this project would be challenging, but it is the difficulties in life that lead to greater successes. I worked for what I created. Through this venture, I developed my inner artist, my holistic self, and found my fire. These pieces are my personal ideology: I will strive to break the chains—letting myself free with a new energy inside of me.