

PARK UNIVERSITY'S

18TH ANNUAL

STUDENT RESEARCH AND

CREATIVE ARTS

SYMPOSIUM

SPRING 2023





PARK  
UNIVERSITY

# UNDERGROUND



## Schedule of Events

Date	Event	Location	Chair
<b>Monday – April 24</b>			
9:00–12:00	Art Presentations	Park Avenue	
9:00–12:00	Interior Design Presentations	Park Avenue	
10:00–11:15	Science Oral Presentations	Watson Literacy Classroom	Alex Silvius
1:30–3:00	Honors Academy Oral Presentations	Watson Literacy Classroom	Patty Ryberg
7:00 PM	Strange New Worlds	Alumni Hall Theater	
<b>Tuesday – April 25</b>			
9:00–1:00	Poster Presentations	Park Avenue	
10:00–11:45	Criminal Justice Oral Presentations	Watson Literacy Classroom	Greg Plumb
11:45–12:30	English Oral Presentations	Watson Literacy Classroom	Glenn Lester
1:30–4:15	Oral Presentations	Watson Literacy Classroom	Alex Silvius
<b>Online Materials</b>			
	Posters	<a href="https://advancing.park.edu/events/srcas/">https://advancing.park.edu/events/srcas/</a>	
	Oral Presentations	<a href="https://advancing.park.edu/events/srcas/">https://advancing.park.edu/events/srcas/</a>	

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**MONDAY APRIL 24**  
**9:00 – 12:00**  
**ART PRESENTATIONS**  
**PARK AVENUE**

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### **Golden Hour**

Barbara Almeida – Senior – Fine Arts

My presentation consists in artworks I have done inside and outside classroom. Overall, it is a presentation of paintings done in watercolor and acrylic paints.

*Mentored by Andrea Lee, Assoc. Prof. Fine Art*

### **Artwork Portfolio**

Leah Hageman – Sophomore – Fine Arts and Graphic Design

Paintings and 3D Design Artwork

*Mentored by Andrea Lee, Assoc. Prof. Fine Art*

### **The Artwork of Riley Peak**

Riley Peak – Senior – Fine Arts & Graphic Design

My name is Riley Peak and I am graduating this year with a double major in Fine art and Graphic Design. My focuses include, digital illustration, painting, and ceramics.

*Mentored by Andrea Lee, Assoc. Prof. Fine Art*

### **Artrepreneurship**

Cherri Regis – Junior – Fine Art

This display will explore the connection between fine art and entrepreneurship.

*Mentored by Andrea Lee, Assoc. Prof. Fine Art*

### **Various works from my fine art classes throughout my college career**

Cassidy Bradshaw – Junior – K–12 Art Education

I am presenting four pieces in the program. Three of the pieces are from my Drawing I and Drawing II courses. The mediums I work with is graphite, charcoal, India ink, and chalk pastel on various types of paper. The last piece is from my Paining I class which is acrylic on wood.

*Mentor: Matthew Krawcheck, Instructor Fine Art*

### **Painting 1 work**

Rachel Nash – Sophomore – Graphic design

These are some paintings that I made for my painting class last semester. I also have a mix of other work like sketch book drawing that I had fun making too!

*Mentored by Andrea Lee, Assoc. Prof. Fine Art*

### **Works of Mine**

Courtney B. Ochieng – Junior – Fine Arts

This is a collection of works that I have done this semester

*Mentor: Elaina Michalski, Asst. Teaching Prof Fine Art*

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**MONDAY APRIL 24**

**9:00–12:00**

**INTERIOR DESIGN**

**PARK AVENUE**

*Mentored by Amy Hersch, Visiting Asst. Prof. of Art & Design*

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### **Rare Beauty Office Creation**

Alexia Adams – Sophomore – Interior Design

For this project, we were to create an office for an existing company. I chose to do mine over the makeup brand "Rare Beauty". This company is very successful, so I have included the necessary qualities to adequately provide for this business.

### **Office Space**

Victoria Boquin – Senior – Interior Design

I will be submitting a poster for Curves and Combat boots office space that I designed in commercial design.

### **Sculpture, Floor Plan**

Nargiza Ibragimova – Junior – Interior Design

Visual arts, architectural work

### **Luminaire Design – Spark!**

Krista Murphy – Senior – Interior Design

For the final project in AR393 Lighting Fundamentals for Interior Design the objective was to create a luminaire, light fixture, from a LED lighting kit. The luminaire was one part of a schematic lighting design created for a small business. This process included finding inspiration for the design, creating a concept statement, sketches, and gathering materials. The end result is a full-scale working table lamp.

### **Construction Model – Two Story Residence**

Krista Murphy – Senior – Interior Design

For the final project in AR495 Building Construction Systems the objective was to research and build a model of a two story home at a scale 1"= 1'0. The model required the proper foundation based on the home's location and climate. It also shows the layers of the building process including framing, door/window openings, interior/exterior finishes, and electrical receptacles all built meeting proper guidelines and codes.

### **Calyx Elementary**

Morgan Ohland – Senior – Interior Design

Accessibility benefits everyone and should be integrated into every design in a way that does not draw attention or single anyone out. Calyx Elementary was planned out with this in mind and showcases the ways in which universal design benefits all.

## **Residential Loft Project**

Taylor Reeves – Senior – Interior Design

This project is a residential loft that I designed for a woman who travels a lot and can be used as a space for her to rent out when she is gone. It also accommodates her and her family when she is in town and serves as a home. This is two large presentation boards including drawings and floorplans.

## **The Covey**

Kenzie Robinson – Senior – Interior Design

The Covey is a proposed solution to the housing crisis we are currently experiencing. It combines Adaptive Reuse and Co-living to create a community-based living solution. The Covey is a former school that has been renovated to include 18 private living spaces and 4 public spaces that encourage all to come together. The furnishings pay ode to the mid-century design with an elevated, playful flair.

## **Furniture Design Chair**

Samantha Trautman – Senior – Interior Design

I designed and built a chair that was inspired by the famous designer Frank Lloyd Wright.

## **Flowering Fields Nature Center & Botanical Garden**

Delaney Wahlert – Senior – Interior Design

This project's purpose is to look at the sustainable “green” design of the Living Building Challenge (LBC) and how it makes design projects eco-friendly. The LBC mentions that buildings should be as “efficient as a flower; a simple symbol for the ideal built environment” (International Living Future Institute, 2019). This is done by looking at the research surrounding the LBC and its aspects of sustainability, (1) petal of place, (2) petal of water, (3) petal of energy, (4) health and happiness, (5) petal of materials, (6) petal of equity, and (7) petal of beauty. While there are other green building rating systems like the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED), “the Living Building Challenge goes beyond LEED” (Hegazy, Seddik, & Ibrahim, 2017), this is because the LBC’s first principle of certification is based on the building’s actual performance rather than its anticipated performance (International Living Future Institute, 2019, 13) and is known to be an “‘all-or-nothing’ not a point-base system” (Kamali & Hewage, 2015, 302-5). The Living Building Challenge 4.0 is based on making sure the effort of teams can be better aligned with their impacts at both project and market scales; and to fill the gap between the highest levels of mainstream green building certifications (International Living Future Institute, 2019). The LBC’s second principle is that all projects “must be holistic – addressing aspects of all seven Petals through the Core Imperatives” (International Living Future Institute, 2019). This paper’s research will be conducted by looking at the Living Building Challenge including research based on its standards and requirements, as well as looking at case studies that have achieved their Living Building Certification to see how they achieve the requirements of the LBC 4.0 in order to be ecofriendly

## **Palmetto Motel**

Sydnee Moye – Senior – Interior Design

The concept for the Palmetto Motel focuses around creating a nostalgic feeling in a more modern and updated space. Retro colors and patterns will be incorporated as the main focus of the design in order to achieve a nostalgic atmosphere. Mid-century modern furniture and finishes will be used in combination with these retro materials and colors where possible. Medium wood tones and natural stone elements will provide a grounded base for color to play off of. As the name Palmetto implies, plants, particularly tropical palms and cacti, will be incorporated in most spaces to give the motel a tropical vacation aesthetic.

The purpose of this project’s research is to examine the benefits of building layout based on each type of

space to be used in hospitality design. Each space that will be located on the motel property will be examined individually.

Analyzing building orientation with regard to the sun's path during winter and summer can have a monumental impact on the cost of operating. Having proper building orientation may lead to decreased energy usage for heating and cooling systems, increased availability of natural light over artificial, and overall guest comfort in a space. Money saved can be used to invest in higher quality materials, the inclusion of more amenities, and more.

Feng shui can be a great system to utilize in site

## **Ensemble – An Intimate Restaurant in a Post-COVID World**

Emily Reynolds – Senior – Interior Design

Restaurants have always been a place where people can go to catch up with friends, grab a quick bite to eat, celebrate family milestones, or even just hang out and drink a cocktail. They allow for socialization, a sense of community, and connection beyond the walls of home. However, when Coronavirus slowly took over the globe in 2020, this familiar and dependable social nature that had been vital to communities for decades came to a halt. As the world was turned on its head, people were learning new ways of thinking, such as standing at least six feet away from others and wearing a surgical mask wherever they went. Restaurants were no exception to these new communal rules; hand sanitizer was at every turn and Plexiglass screens were being installed between every table to avoid the spread of germs between dining parties, ruining the illusive ambiance that interior designers have tried so hard to provide. People were suddenly afraid to go out and enjoy life, as they had been doing prior to the pandemic. Ensemble is a new-age restaurant that takes these challenges and implements them in a fresh and modern way, creating a cozy and intimate atmosphere while allowing guests the option of privacy or interaction. This luxurious space provides patrons with multiple dining options, giving guests a sense of privacy and security but also the chance to socialize and mingle.

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**MONDAY APRIL 24**

**10:00–11:15**

**SCIENTIFIC ORAL PRESENTATIONS**

**WATSON LITERACY CLASSROOM**

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

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### **10:00 Surgical Procedures to Correct Brachycephalic Obstructive Airway Syndrome.**

Shana Lindahl – Senior - Biology

Brachycephalic Obstructive Airway Syndrome (BOAS) is a set of congenital birth defects present in the majority of brachycephalic dogs and cats. This speech discusses the additional risk factors, progression of the condition if left untreated, and several of the most common surgical procedures used to treat it.

### **10:15 Asian Elephants**

Cieonna Johnson – Senior - Biology

Will be talking about the endangered Asian Elephants species and what are humans doing to harm them and what have the humans created to help them; via the sanctuary built in Thailand.

## **10:30 Propagation**

Corbyn Hutchings – Senior – Biology

Propagation is an essential process for plant growers as it enables the creation of new plants. In this presentation, we will explore the concept of propagation and identify which plants can be propagated. We will discuss four propagation modes, including leaf cuttings, stem cuttings, simple layering, and air layering, and explain how each method works. Leaf cuttings involve removing a leaf from a parent plant and encouraging it to grow into a new plant. Stem cuttings are another method that involves cutting a portion of the stem and planting it to create a new plant. Simple layering is a process that involves bending a branch to the ground and allowing it to produce roots before separating it from the parent plant. Finally, air layering is a method that encourages roots to grow while the stem is still attached to the parent plant. By the end of this presentation, you will have a basic understanding of propagation and the various methods available to create new plants.

## **10:45 Agricultural Benefits of Crop Rotation**

Kayla Nedved – Biology - Senior

The presentation will focus on the benefits of the agricultural practice of crop rotation. Some of these benefits include overall improvement of the soil health, increase of nutrient availability, and decrease of the rate of erosion.

## **11:00 ICP-MS: Examining the Safety of Water**

Patrick Robichaud – Senior – Chemistry

This will be an examination of inductively coupled plasma mass spectrometry and its application in modern day laboratories, such as the EPA, for use in water sample analysis. The instrumentation will be discussed in a manner that not only introduces but provides sufficient information about the mechanism of the machine. Additionally, real-world examples of ICP-MS being used in laboratories will be showcased, ensuring to also present the application and impact of this on water safety.

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**MONDAY APRIL 24**

**1:30–3:00**

**HONORS ACADEMY PRESENTATIONS**

**WATSON LITERACY CLASSROOM**

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## **1:30 Securing UTF-8 Encoded Messages Using Least Significant Bit Substitution in Colored Images**

Wesley Jacobs – Senior – Information and Computer Science

This presentation will introduce a steganographic algorithm capable of encoding any UTF-8 string of characters into an image. This is done by substituting the Least Significant Bit (LSB) of each pixel's color value. To hide the data in a more effective way, digital signatures and cryptographically random sequences of LSB changes are used. To measure the effectiveness of its hiding capabilities, four different evaluation techniques are used: Mean squared error, peak signal-to-noise ratio, quality index, and histogram analysis.

*Mentor: John Cigas, Prof. of Computer Science*



## **1:45 Dietary Aspects of an Urban Turtle Community in a Missouri River Tributary: A Stable Isotope and Fecal Approach**

Anastasia Bair – Senior – Biology

Urban streams are influenced by a wide variety of anthropogenic resources. Rush Creek (Platte County, Missouri), a tributary of the Missouri River, has both agricultural and urban inputs in its watershed. Healthy streams should support a robust community of aquatic organisms. In 2021 and 2022, we started monitoring the aquatic turtle community of Rush Creek to determine species composition, morphometrics, and diets within this urban stream. In 2021, four turtle species were collected; red-eared slider (*Trachemys scripta*), western painted turtle (*Chrysemys picta*), common snapping turtle (*Chelydra serpentina*), and spiny softshell turtle (*Apalone spinifera*). Stable isotope analysis of  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  of turtle nails showed trophic relationships among species. Softshell turtles fed at the highest trophic level, while painted turtles occupied the lowest trophic level. Snapping turtles and red-eared sliders had a generalist diet with isotope values falling between soft shelled and painted turtles. In 2022, fecal analysis is being incorporated with  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  stable isotope of nails. Indigestible material in feces (bones, seeds, and exoskeletons) could show why specialists diets of softshell and painted turtles are widely different, while giving insight into why generalist diets of snapping turtles and sliders span a wider trophic range.

*Mentor: Jeff Kimmons, Assoc. Prof. of Biology*

## **2:00 The Neurological Implications of Post-Covid Syndrome**

Kayla Thomas – Senior – Biology

A review of Post-Covid Syndrome (PCS) with an emphasis on the various associated symptoms, the mechanism of the virus, and currently known potential treatment options.

*Mentor: Brian Hoffman, Prof. of Biology*

## **2:15 Identifying and Qualifying Gender-Based Discrepancies Among Peace-Building Women Involved in NGO organizations**

Sophia Wilde – Senior – Nursing

When women are involved in peace-building work, conflicts, and problems are solved faster and more humanely and therefore they must have a role in conflict prevention and resolution.

*Mentor: Steven Youngblood, Assoc. Prof. of Communication*

## **2:30 Promotion of Mass Violence in Call of Duty: Black Ops 2**

Kai Yim – Senior – Nursing

Call of Duty: Black Ops 2 is a popular video game that has drawn the attention of gamers across the world. Though, littered throughout the game seem to be different implications towards mass violence where complete destruction is rewardable behavior. I'm here to both discuss and analyze those implications and how they pertain to video game studies as well as war and first-person shooter games.

*Mentor: Amy Mecklenburg-Faenger, Assoc. Prof. of English*

## **2:45 Early Child Development: Improving the Quality of Stay-at-Home Care for Families with Children Ages 0-5**

Blair Rupnow – Senior – Information Technology

The purpose of this study is to discuss the efficacy of home-based Head Start programs located in a midwestern, urban city. The organization currently serves to provide resources to families with children (prenatal to the age of 5) who wish to pursue parental, home-based childcare. Further analysis will be conducted on the developmental benefits associated with participation with the organization, and areas of improvement for this program. The data from this study will be collected through observations obtained from the perspectives of multiple home-based specialists and participating families. Further

data will be collected through a series of interviews from both participating families and home-based specialists who are involved in the organization. The results may provide sufficient material for home-based specialists, childcare educators, home-based organizations, and parents/guardians of young children

*Mentor: Amy Wolf, Assoc. Prof. of Education*

Johnson Family Lecture Series in

# SCIENCE

PRESENTS

## SARAH E. MORAN, PH.D.

# STRANGE NEW WORLDS:

EXOPLANET  
ATMOSPHERES  
THROUGH  
THE EYES OF  
THE JAMES  
WEBB SPACE  
TELESCOPE

In this artist's conception, light from a star 700 light-years from Earth glimmers off the swagy cloud tops of WASP-39b, a water-rich gas giant. Astronomers recently reported detecting sulfur dioxide, a contributor to smog, in its skies.  
NASA; ESA; ESA; Joseph Citrard (STScI)

**SARAH MORAN, PH.D.**, the first Laser and Planetary Laboratory Director's Postdoctoral Fellow at the University of Arizona, will discuss the chemistry, clouds and climates of worlds within and beyond the solar system as observed by the James Webb Space Telescope. Moran will get into contact what these discoveries mean for finding habitable — and possibly inhabited — worlds in the future, as steps are taken along the road to answering the big question: Are we alone? In early September 2022, Moran was among the team of scientists that discovered the first detection of carbon dioxide in an exoplanet with the Webb telescope, and her work was featured in a Science magazine article in January. Moran earned her Doctor of Philosophy degree and Master of Arts degree, both in planetary sciences, from Johns Hopkins University in Maryland, and a Bachelor of Arts degree in astrophysics from Bard College / Columbia University in New York.



### April 24, 6:30 p.m.

### Lecture begins at 7 p.m.

Jenkin and Barbara David Theater (Alumni Hall) at Park University

The lecture is free and open to the public, though registration is requested at

## [park.edu/johnson](http://park.edu/johnson)



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The Johnson Family Lecture Series in Science was established by Park alumnus George Johnson, '63, Ph.D., who has provided funding for the event.

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**TUESDAY APRIL 25**  
**9:00–1:00**  
**POSTER PRESENTATIONS**  
**PARK AVENUE**

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### **The Growth of the Onion**

Grant Barry – Sophomore – Business Management

This is a poster that talks about the three sections of the character Onion in *The Good Lord Bird*. There will be pictures and paragraphs explaining the changes that Onion went through in the book.

*Mentor: Glenn Lester, Assoc. Prof. English*

### **The Layers of Onion**

Rachel Malelega – Freshman – Accounting

A cake that I will be making will visually look like an onion. This will be to represent the character Onion in, *The Good Lord Bird*, to show the layers and character development that Onion goes through in the book.

*Mentor: Glenn Lester, Assoc. Prof. English*

### **The Good Lord Bird: Insurrection**

Delaney Duke – Sophomore – Social Work

A trifold representing a scene in *The Good Lord Bird* that shows a summary through pictures and short sentences.

*Mentor: Glenn Lester, Assoc. Prof. English*

### **How to Solve Problems: An Analysis of *The Good Lord Bird* through the Lens of St.**

#### **Thomas Aquinas**

Ethan Willmann – Junior – Information & Computer Science

In this poster presentation, Moments throughout *The Good Lord Bird* will be analyzed and understood using the philosophy and theology of St. Thomas Aquinas.

*Mentor: Glenn Lester, Assoc. Prof. English*

### **A Biographical Investigation of James McBride**

Manisha Joshi – Sophomore – Nursing

This poster explores how James MC experiences led him to write the novel *The Good Lord Bird* –

*Mentor: Glenn Lester, Assoc. Prof. English*

### **Pro Slavery vs. Anti-Slavery by the Bible**

Ariah Durkes – Freshman – Undeclared

For my project I will be comparing how Christian's in America (pre-Civil War) used their faith to justify why they did or did not have slaves. Then by the book *The Good Lord Bird* I will be using John Browns character as an abolitionist and analyze his views on slavery by the Bible.

*Mentor: Glenn Lester, Assoc. Prof. English*

## **History vs. Fiction: The Depiction of John Brown, Frederick Douglass, and Harriet Tubman in *The Good Lord Bird***

Ranadheer Marla – Senior – Computer Science

This poster explores how does the depiction of John Brown, Frederick Douglass, and Harriet Tubman in *The Good Lord Bird* compare with the historical record?

*Mentor: Glenn Lester, Assoc. Prof. English*

## **John Brown Analysis**

Savannah White – Junior – Political Science

This visual presentation will explore James McBride's version of John Brown from *The Good Lord Bird*. It will include a "WANTED" poster of John Brown, as well as other visual components to John Brown's character.

*Mentor: Glenn Lester, Assoc. Prof. English*

## ***Sense and Sensibility* Reimagined**

Mariah Hirst – Sophomore – Psychology

Characters from Jane Austen's *Sense and Sensibility* reimagined as they would look in 2023.

*Mentor: Glenn Lester, Assoc. Prof. English*

## **Barton Cottage: An Architectural Exploration of Jane Austen's *Sense and Sensibility***

Dana Gloe – Sophomore – Secondary Education – English

A replica of Barton Cottage that displays the setting Jane Austen created during her novel *Sense and Sensibility*. You can explore the home and construct an understanding of what took place in each room.

*Mentor: Glenn Lester, Assoc. Prof. English*

## **Banned Books Across the Nation**

Cole Guzzo – Sophomore – Business Management

For my Visual Art I will talk about all the different books getting banned across the nation, why they are getting banned, and raise some questions about the topic.

*Mentor: Glenn Lester, Assoc. Prof. English*

## **Big Ben**

Hollie Ringwood – Freshman – Psychology

This project explores themes present within the novel *Mrs. Dalloway* with an assortment of crocheted items.

*Mentor: Glenn Lester, Assoc. Prof. English*

## **Lesson Plan – *Mrs. Dalloway***

Lexie Chambers – Sophomore – Social Psychology

I have created a lesson plan around the book, *Mrs. Dalloway* for EN234. I have created a poster to highlight the points of the lesson plan and the activities that would be involved.

*Mentor: Glenn Lester, Assoc. Prof. English*

## **Neoplastic Response Evaluation Using the Disc Bioassay**

Matt Brummett – Senior – Biology

*Agrobacterium tumefaciens* is a soil microbe that induces a neoplastic response in a wide variety of plant species. The bacterium produces tumors that appear to be histologically similar to those found in human. *Agrobacterium tumefaciens* contains a tumor inducing (Ti) plasmid that is essential for the delivery of the pathogen into the host genome consequently transforming normal plant cells into

autonomous tumor cells. The essential regions of the Ti plasmid include six major operons Vir A, VirB, Vir C, VirD, VirE and VirG encoding for virulence genes; and the transfer DNA region, a section of the Ti plasmid that is transferred via conjugation into host plant cells. The molecular events by which Ti plasmid is integrated into the host genome remain elusive. *Agrobacterium tumefaciens* has proven to be an efficient DNA delivery system for production of biomedically important macromolecules and therapeutics.

In the current study, we have utilized the disc bioassay to evaluate the tumorigenic response in various plant tissues. Our data indicate that the neoplastic response induced by *Agrobacterium tumefaciens* varies significantly amongst the panel evaluated.

*Mentor: Azin Agah, Asst. Prof. Chemistry*

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**TUESDAY APRIL 25**  
**10:15–11:45**  
**CRIMINAL JUSTICE ORAL PRESENTATIONS**  
**WATSON LITERACY CLASSROOM**  
*Mentored by Greg Plumb, Prof. Criminal Justice*

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**10:15 Prison Treatment**

Jasmine Banks – Senior – Criminal Justice

Finding out why some inmates might be mistreated and whether this has anything to do with gender.

**10:30 Body Cameras and Surveillance Effect on Police Practices**

Alex Rodriguez – Senior – Criminal Justice

This presentation will discuss body cameras and surveillance cameras effect on police practices along with social medias effect.

**10:45 Community Policing**

Nathaniel Stump – Senior – Criminal Justice

This presentation is going to cover the study of community policing to see if it reduces crime in the area it is being practiced in,

**11:00 The Effect of Solitary Confinement on the Mental Health of Male Inmates**

Savana Watkins – Senior – Criminal Justice

The Effect of Solitary Confinement on the Mental Health of Male Inmates

**11:15 Perception of Probation and Diversion and Impact on Community**

Danielle Yulich – Senior – Criminal Justice

This presentation will focus on the perception that the public has of probation and diversion, and the impact that it has on the community.

**11: 30 The Impact of Illegal Drugs and Guns on Kansas City Murder Rate**

Matthew Schrick – Senior – Criminal Justice

The Impact of Illegal Drugs and Guns on Kansas City Murder Rate

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**TUESDAY APRIL 25**  
**11:45 – 12:30**  
**ENGLISH ORAL PRESENTATIONS**  
**WATSON LITERACY CLASSROOM**

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**11:45 Cotton Mather's "The Wonders of the Invisible World" Created Unfair Justice in the Salem Witch Trials**

Matthew R. Revers – Junior – Secondary Education & English

This will be about an essay I wrote in my American Literature from Puritans to Abolitionists class (EN 317). A literature review of Cotton Mather's "The Wonders of the Invisible World" viewed from a 21st-century lens using new historicism. My research on the Salem Witch Trials helped me analyze Mather's defense of "spectral evidence" and uncertainty in his writing style from his literature. Mather created unfair justifications in his writing over "The Wonders of the Invisible World," which had themes of gender stereotyping, social hierarchies, and the belief in the Devil.

*Mentor: Stacey Kikendall, Assoc. Prof. English*

**12:00 Frederick Douglass' character in *The Good Lord Bird***

Isabella Clark – Senior - English

This oral presentation takes a look into James McBride's controversial portrayal of Frederick Douglass in his book "The Good Lord Bird" exploring the question of why it was done.

*Mentor: Glenn Lester, Assoc. Prof. English*

**12:15 "Once More About the Breach": Reception History of Shakespeare's *Henry V.3.1***

Brandon Schmitz – Senior – English

A scholarly analysis of contemporary references to an iconic Shakespearean monologue and assessment of how this association might augment the understanding of the newer works.

*Mentor: Glenn Lester, Assoc. Prof. English*

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**TUESDAY APRIL 25**  
**1:30–4:15**  
**ORAL PRESENTATIONS**  
**WATSON LITERACY CLASSROOM**

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**1:30 Lessons Learned from the PEARL Lab**

Sarah Mathis – Senior – Social Psychology & Business Administration

Julia Pind – Senior – Psychology

New experiences are a part of everyday life and can shape and impact an individual's character. During our time in the Department of Psychology and Sociology PEARL Research Laboratory, we were introduced to a plethora of new experiences that cannot be duplicated in a classroom. From developing new skills in public speaking, to collaborating and managing stress, we will present these experiences and what we gained from each of them.

*Mentor: Andrew Johnson, Prof. of Psychology*

## **1:45 Postpartum Depression**

Dragana Andonovski – Senior - Biology

Psychological aspects of postpartum depression. What they are and how they affect women. Will take a look at a study and the numbers mostly focused on in the United States.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

## **2:00 The Neuroscience Behind Serial Killers**

Nadine Abualhaija – Senior – Biology

This presentation will explain some genetic predispositions to violence as well as how a killer's brain is physically different to a nonviolent person's brain.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

## **2:15 The Comorbid Effects of Cannabis Use Disorder on MDD/Depressive symptoms**

Jackson Austin – Senior - Biology

The psychoactive ingredient within cannabis is known as THC, when this cannabinoid binds with CB1 receptors within the NAcc of the brain it can cause an augmented reward system for any other stimuli besides cannabis. Yet, this phenomenon only occurs in individuals that have cannabis use disorder also known as a cannabis dependency. This interaction creates harmful effects in individuals that have depression, or have a diagnosis of MDD, by increasing the intensity and frequency of depressive thoughts and feelings anytime that a comorbid individual for CUD and MDD does not have any cannabinoids in their system. This causes many depressed individuals to start using cannabis more often and in higher concentrations creating a positive feedback loop for using as a coping mechanism to help with symptoms that only get worse whenever the individual stops using. The number of individuals that undergo this comorbidity could consistently increase due to certain trends within society such as an increase in depression, increase in THC concentration in cannabis products, and a decrease in the age that individuals are now being introduced to cannabis.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

## **2:30 Misuse of ADHD Medications in Adults**

Hannah Porras – Senior – Chemistry

A persistent pattern of hyperactivity and attention called Attention Deficit Hyperactivity Disorder (ADHD) interferes with function or growth. Inattention and hyperactivity are symptoms of ADHD that persist over time and include trouble focusing, fidgeting, problems maintaining attention, always being on the go, and more. To treat a problem, one may get a variety of therapies, including medication, psychotherapy, and education. Unfortunately, the overuse of stimulants has grown recently, even though they are the most often prescribed treatments to treat the signs and symptoms of ADHD. Stimulants raise the brain chemicals dopamine and norepinephrine levels, which are essential for thought and focus. Several stimulants are often misused, including Adderall, Ritalin, and Concerta. Stimulants can change a person's brain, initiate an addiction, and lead to drug misuse via neurotoxicity. The overprescribing has caused a shortage in pharmacies nationwide, where patients must search and constantly keep in touch with pharmacies and which one has them in stock. However, people can effectively overcome stimulant addiction if they seek medical treatment, counseling, behavioral therapy, and other forms of social support to help them recover. This presentation will focus on adult patients that are treating their ADHD with the medication that is on shortage.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*



## **2:45 Restorative 3D Bioprinting and its impacts on the Dental Industry**

Keaton Wilczynski – Senior – Biology

During this presentation elaborations will be made on how tissue engineering through 3D bioprinting is revolutionizing the dental industry. Development using this futuristic technology will eventually replace the current and stagnant treatment. The specific details of 3D bioprinting will be discussed along with the different methods of bioprinting. Explanations pertaining to the specifics of regeneration from each method, factors of application, and other instances of innovative uses from bioprinting will provide a futuristic picture of the dental industry. Finally, short term and long-term goals of 3D bioprinting will be discussed as this treatment is recently making large impacts and gaining extensive amounts of attention and possibilities.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

## **3:00 The Cure to Baldness**

Michael Stanley – Senior – Biology

Could there be a cure to baldness in the near future? According to new scientific research, a cure for male and female pattern baldness may be a reality very soon. In the past, the options for combating baldness have been very limited including hair plugs and toupee companies. Today there are procedures that can harvest hair from a donor region on your body and transplant that hair to a desired recipient area. These procedures are known as FUE (follicular unit extraction) and FUT (follicular unit transplantation). The science that is currently being studied to “cure” human baldness include creating 3D printed environments to grow genetically identical hair follicles to be placed at the desired recipient location. The science also includes the cloning and implantation of dermal papilla cells, which are the cells located at the base of the hair follicle that play a pivotal role in hair formation and growth. Both of these studies are striving to create an unlimited supply of genetically identical hair to be transplanted to the desired location on the body. In the very near future, this science has the potential to be life altering for many people suffering from hair loss and baldness.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

## **3:15 Understanding T-DNA Insertion using Computational Methods**

Sawyer Smith – Senior – Biology

*Agrobacterium tumefaciens* bacterium known for its pathogenic ability to induce tumor formation in over 100 different species of plants, often leading to significant decline in individual plant health. The mechanism by which tumors are induced includes a segment of DNA contained within the bacterium’s Ti plasmid (known as T-DNA), which is integrated in the host genome. This project uses machine learning to determine if insertion can be accurately predicted based on host genome sequence alone.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

## **3:30 Pectus Excavatum also known as Sunken Chest**

Christian Fullmer – Senior - Biology

Pectus excavatum, a congenital chest wall deformity characterized by a sunken sternum, can lead to physiological and psychological complications for affected individuals. Traditional treatment options, such as the Ravitch procedure, have been associated with extensive surgical incisions and extended recovery periods. This presentation aims to discuss the Nuss procedure, a minimally invasive technique for correcting pectus excavatum, by providing a comprehensive overview and analysis of its application. The presentation will cover the history, development, and indications for the Nuss procedure, as well as the importance of patient selection and pre-operative evaluation. The surgical steps, post-operative care, and long-term outcomes of the Nuss procedure will be examined. Additionally, the presentation will address potential risks, complications, and limitations associated with the Nuss procedure, emphasizing the importance of proper surgical technique and follow-up care. By showcasing the benefits of the Nuss

procedure through this analysis, the presentation highlights the potential for this approach to transform the lives of patients with pectus excavatum and calls for continued research and advancements in the field.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

### **3:45 Takotsubo Cardiomyopathy**

Elena Tamayo – Senior – Biology

Broken-Heart syndrome is painful and on rare occasions can be deadly. For someone to have such a reaction to news or even something visual is something not very many can wrap their minds around. So, let's talk about it.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

### **4:00 Warfarin: Rat Poison and Heart Medication**

Jack Dunn – Senior – Biology

Warfarin is a medication used to prevent and treat blood clots, a serious medical condition that can lead to heart attacks, strokes, and other complications. The drug has a long and fascinating history, dating back to the early 20th century when a mysterious disease was killing cattle in the American Midwest. It was discovered that the disease was caused by eating moldy sweet clover, and the active ingredient in the mold was identified as dicoumarol. This compound was found to be a powerful anticoagulant, and in the 1940s, a synthetic version of it was developed and named warfarin.

Since its introduction, warfarin has been widely used in clinical practice to prevent and treat blood clots. Its mechanism of action involves interfering with the synthesis of vitamin K-dependent clotting factors, thereby reducing the ability of the blood to clot. Warfarin is administered orally, and its effects are monitored using the international normalized ratio (INR) test.

Despite its efficacy, warfarin is associated with a number of side effects, including bleeding and drug interactions. In recent years, newer anticoagulant medications have been developed that offer similar benefits with fewer risks. However, warfarin remains an important drug in the management of thrombotic disorders and its fascinating history and method of action continue to fascinate researchers and medical professionals alike.

*Mentored by Alexander Silvius, Assoc. Prof. of Physics*

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## **VIRTUAL POSTERS**

<https://advancing.park.edu/events/srcas/>

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### **Induction Proof**

Thomas Otte Corrêa – Freshman – Computer Science

Joao Infante – Freshman – Computer Science

How to prove that an equation is true using the Induction Case

*Mentor: Wen Hsin, Prof. Computer Science*

### **My Experience on ChatGPT and GPTZero**

Somika Kumari Ganesh – Sophomore – Computer & Information Science

In my presentation, I examine the performance of ChatGPT, a large language model, and GPTZero, a tool used to track and analyze the text generated by ChatGPT. Through my research project, I aimed to investigate the capabilities of ChatGPT and analyze how GPTZero can be used to track the text generated by ChatGPT.

*Mentor: Wen Hsin, Prof. Computer Science*

## Golden Ratio Applications

Ali Sabree – Sophomore – Information & Computer Science

Luis Martinez – Freshman – Cybersecurity

Charlotte Hough – Junior – Information & Computer Science

Mihailo Ivanovic – Freshman – Information & Computer Science

Tisha Foster – Sophomore – Information & Computer Science

Colin Edwards – Sophomore – Business Administration

In this presentation we identified natural and man-made objects that can be commonly found and exemplify the Golden Ratio.

*Mentor: Wen Hsin, Prof. Computer Science*

## Golden Ratio

Pawinee Sukasem – Junior – Computer Science

The Golden Ratio is one of the strongest mathematical ratios on earth, which is equal to  $(1 + \sqrt{5})/2$  or approximately 1.618.

The Golden Ratio is known as nature's most beautiful and perfect ratio. Which has been used in the creation of art, architecture, and many important buildings. If you try to observe carefully you may find that many things sneaking around, you are the golden ratio.

*Mentor: Wen Hsin, Prof. Computer Science*

## Computer Science and Information Systems Internship Experience Sharing

Matthew Thomas – Junior – Cyber Security

Hammad Kahn – Junior – Computer Science

Stephanie Kugle – Senior – Computer Science

Internship in Computer Science and Information Systems (CSIS) is a great way for the students to apply what they learn in academics to the professional environment. It allows the students to explore and gain the knowledge in a field before committing to the field as a career. Even though a lot of internship positions are temporary, over the years, many students have reported that they subsequently obtain permanent positions with the interned companies. This poster serves as an area for the students to share their internship experience, including timing of applying an internship, interned companies, duties of the positions, tips, and advice.

*Mentor: Crystal Peng, Assoc. Prof. Computer Science & Wen Hsin, Prof. Computer Science*

## Analysis of 34-million-year-old Fossils from Florissant Formation: Random Sample vs. Park University's On-Site Samples

Stephanie Peralta – Senior – Interdisciplinary Studies Geoscience/Sociology

The Florissant Fossils Beds in Colorado are well-known for quality preservation of plants and insects. These fossils are approximately 34 million years old (Eocene). This study focuses on the biodiversity of a ten-pound mailed sample from the lower shale versus on-site collecting for multiple hours. The ten-pound sample ultimately produced ten identifiable plant leaves representing four species that are Beech, Elm-like, Bladdernut and a tropical tree leaf. One gastropod shell and the presence of several microfossils was confirmed (Ostracods, Pollen, and Diatoms).

The on-site collecting for the Park University collection only produced a total of seven plant leaves but added two new species to the overall list, the Redwood-like (*Sequoia affinis*) and Rose-like (*Lomatia lineatum*). It also contains four insects which have been identified as a wasp, a rolling weevil, a dance fly, a fly larvae. It also contains the same fossil snail and microfossils found in the random sample.

*Mentor: Scott Hageman, Assoc. Dean, College Liberal Arts & Sciences*

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## VIRTUAL ORAL PRESENTATIONS

<https://advancing.park.edu/events/srcas/>

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### **Slaying a Corporate Dragon: How the Dungeons and Dragons Community Rejected Wizards of the Coast's Attempt to Revise the Open Game License**

Wren Marie Hadley – Senior – English & Professional Writing

My presentation is a rhetorical analysis of the recent Dungeons & Dragons (D&D) Open Game License (OGL) controversy. This controversy stemmed from Wizards of the Coast (WoTC), the company that owns D&D, attempting to update the OGL that has governed use of official D&D content by third-party creators for over twenty years. The changes involved several things that the community did not like, including implementing royalties, license-back provisions, waiving the right to sue WoTC over disagreements, and giving WoTC the ability to alter or terminate a contract with a creator at any time. WoTC needed strong rhetoric to be able to convince the community to accept this new license, and ultimately their ethos was weakened and unable to recover due to the rhetorical vision that formed within the D&D community. The rhetorical vision of the community characterized WoTC as an evil, greedy villain and the community as a group of misfit adventurers, which gave the community the motivation needed to band together against the new OGL.

*Mentor: Stephen David Grover, Asst. Prof. English*

### **A Critical Analysis of Larry McMurty's Novel *Lonesome Dove***

Elizabeth Knechtel – Senior – English

An analysis of Larry McMurty's novel *Lonesome Dove*. This presentation will utilize a feminist critical lens to help audiences understand how the 1985 publication, and 1989 mini-series release, impacted the portrayal of women in 1870s America

*Mentor: Stephen David Grover, Asst. Prof. English*

### **On making Modern Myths**

Brandon Schmitz – Senior – English

A capstone project for his Bachelor's of Arts degree, Brandon Schmitz argues for a re-conceptualization moralistic mythology into a format that might be more palatable for a modern audience.

*Mentor: Stephen David Grover, Asst. Prof. English*

### **Representations of Collectivist, Individualist, and Hybrid Identities in *Neon Genesis Evangelion* and *End of Evangelion***

Hannah Womack – Senior – English

My presentation is a historical-cultural analysis of the Japanese anime series Neon Genesis Evangelion and its sequel film End of Evangelion. I will be examining the history behind Japan's longhand culture of collectivism, in which their society values cohesion and social harmony over individual desires, and how individualism was introduced and helped to create a new hybrid identity that is unique to Japan. I then apply these concepts to NGE and EoE by showing how the show is a representation of this social shift through the characters of Rei, Asuka, and Shinji, and how they represent the collectivist, individualist, and hybrid mentalities respectively.

*Mentor: Stephen David Grover, Asst. Prof. English*

## **The Uncanny in Stanley Kubrick's *The Shining***

Alayna Woodsmall – Senior – English

For my presentation I will be presenting my senior Capstone project where I have taken a psychoanalytical approach to Stanley Kubrick's film *The Shining*. In my analysis, I look at how Kubrick's film effectively provokes uncanny emotions within the viewer through his use of mise-en-scene and by using Sigmund Freud's theory of the uncanny.

*Mentor: Stephen David Grover, Asst. Prof. English*



## *2023 Symposium*

Sponsored by the Park University Honors Academy  
College of Liberal Arts and Sciences: James Pasley, Dean  
Patricia Ryberg, Director

*We would like to thank the Park University students, faculty, and staff who participated to make this even possible*



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