

Welcome



Dear Symposium Attendee,

Welcome to Randolph College's 15th annual Symposium of Artists and Scholars. We look forward to this event highlighting the wide spectrum of liberal arts outcomes and experiences nurtured here at Randolph College.

The presentations and posters featured during this symposium represent the diverse disciplines we offer and exemplify the learning that takes place every day. Thanks to our nationally ranked faculty members, students have opportunities to develop skills through mentorships with faculty as well as partnering with their professors for important research projects.

Randolph College prepares students to engage the world critically and creatively, live and work honorably, and experience life abundantly. Since the College's founding in 1891 as Randolph- Macon Woman's College, this institution has remained dedicated to providing an excellent liberal arts education focused on one student at a time. One hundred and thirty-two years later, our students continue to inspire their classmates and faculty to stretch boundaries, spread compassion, and become significant contributors to their communities.

I thank the members of the Student Scholarship Committee who collaborated on organizing this symposium and the students who agreed to share their projects. We appreciate the dedicated faculty members who consistently venture outside of the classroom to foster and nurture individual scholars and artists. This collegiality is key in making the symposium the outstanding program that it is today.

I am sure you will enjoy this year's Symposium of Artists and Scholars.

Sue Ott Rowlands

Vita abundantior,

Sue Ott Rowlands

President

SCHEDULE

9:00-9:30 a.m.: Light breakfast and coffee (Presser Building, Wimberly Recital Hall entrance)

9:30-10:30 a.m.: Welcome and keynote address (Presser Building, Wimberly Recital Hall)

- Welcome and introduction: Holly Tatum, Director of the Center for Student Research
- Keynote address: "Beyond the Laboratory: Applying Psychological Science to Solve Real-World Problems" Beth Schwartz, Associate Director of the American Psychological Association's Office of Applied Science

10:45 a.m. to Noon: Poster Presentations and Exhibits (Hampson Commons) **12:15-1:15 p.m.: Buffet lunch** (Ashley Jack Room, Smith Hall; RSVP required)

1:30-2:30 p.m.: Session I-Oral Presentations

NICHOLS THEATRE (Moderator: Brad Bullock)

1:30 p.m. Kylie Edington '23, "Bismarck's Playbook on the Kulturkampf: An Insight into Manipulating Hatred of Fellow Germans and Escaping Backlash"

1:45 p.m. Mengna Zhao '23, "Unboxing the Representation of 'model minorities' in Hollywood"

2:00 p.m. Jamila Read '23, "Teaching Reading is Rocket Science: Effectiveness of LETRS® Reading Program on High Frequency Word Recognition"

2:15 p.m. Talia Santiago '23, "The Determinants of Antimicrobial Resistance across Europe: A Statistical Approach to Understanding one of the World's Leading Public Health Crises"

KLEIN BOARDROOM (Moderator: Jesse Kern)

1:30 p.m. Jackson Schulte M.A.T. '23, "Making the Standards Interesting: Considering Student Writing Interests during SOL Writing Test Preparation"

1:45 p.m. Gabriel Quintero '23, "A Comparison and Recommendation of Inventory-Based Organic Carbon Estimation Methods in Small Virginia Forests"

2:00 p.m. Jennifer Moore '23, "Antioxidant Properties of Health Bars"

2:15 p.m. Kelli Gajewski '23, "The Power of Praise: The Effects of Praise vs. Corrective Feedback on Students Learning"

2:15-2:30 p.m.: Break & afternoon snack

3:00-4:00 p.m.: Session II-Oral Presentations

NICHOLS THEATRE (Moderator: Lesley Shipley)

3:00 p.m. Ashton Poythress '23, "Tracing the Growth of Online Sports Betting Since its Legalization in 2018" 3:15 p.m. Grace Duckworth '23, "If You Can Read This, You're on the Bus: Psychedelic Rock Posters as Cultural Identifiers"

3:30 p.m. Talia Santiago '23, "Injury Prevention Programs at the Collegiate Level"

3:45 p.m. Kylie Edington '23, "The Unspeakable Impossibility: The Evolution of Translation of Symposium into English and Homosexual Visibility in Western Society"

KLEIN BOARDROOM (Moderator: Amanda Rumore)

3:00 p.m. Marcela Izquierdo Poza '24, "Investigating Navigation Using Smartphone Sensors"

3:15 p.m. Brandon Harrison '23, "Helping Horses Help You"

3:30 p.m. Natalie Clark '23, "The Representation of Women in Sports Broadcasting on ESPN shows 'First Take' and 'NBA Today'"

3:45 p.m. Whitley Sadacca M.A.T. '23, "Teacher Let Me Dance: Examining the Effects of Play-based and Kinesthetic Learning Activities in a Middle School Language Arts Classroom"

POSTERS & EXHIBITS

Cassidy Bell '23, "Investigating Effective Teaching Strategies Focused on Helping Students with Learning Disabilities"

Daniel Bickey '23, "Rocky Mountain Vibes"

Kyler Christiansen '23, "Transatlantic Traditions of Germany and New York"

Hannah Cloven '23, Amanda Jagdeo '24, Cristina Berenguer Llongueras '23, Aleighson Robertson '23, Stability X'25, Mengna Zhao '23, "Clay Street Reservoir Design Competition"

Andi Curtis '24, "Making Work Study Work for You"

John Dolan M.A.T. '23, "Aiming for Excellence: The Use of Choice during Review Activities"

Grace Duckworth '23, "Diarism of the Cagey: A Reflection of My Senior Art Exhibition"

Jenna Fink '23, "Effectiveness of Using Math Manipulatives in a Second Grade Classroom"

Allison Jarrett, M.A.T. '23, "Flexible Seating Effect on Task Behavior in an Elementary Classroom: Give Students Choice"

Jacob Katz '23, Jenaka Derksen '24, Hordy Ndambo '24, "The Role of Situational Stress Induction and Personality Traits on Cheating Behavior"

Bailey Livingston, M.A.T. '24, "Learning Made Fun, Teaching Made Easy: Inguiry-Based vs. Lecture-Based Instruction in the Classroom"

Faith Martin, '23, "Be Fearless"

Jennifer Moore '23, "Summer in Santiago, Spain"

Haley Mundy '23, "Abroad in Belfast: A Randolph Student's Experience at Queen's University"

Deborah Parker '23, "Drawn Animal Anatomy"

Nicholas Pietro '23, "Nonlinear Mode Coupling of Oscillating Neutron Stars"

Eva Pontius '23, "Designing and Implementing a Climate Resilient Forest Garden at R.S. Payne Elementary"

Olivia Richards '23, "Installing a Hydroponic System at Randolph College: A Legacy Project"

Erin Schriever '23, "How Do Different Angled Inclines Affect the Accuracy of an iPhone 12's Accelerometer"

Rion Smith M.A.T. '23, "The Essay-writing Tango: Using the Process-based Approach to Aid Students in Essay Writing"

Megan Westerman '23, "Conference on Policy Process Research"

ABSTRACTS

Cassidy Bell	6
Cristina Berenguer Llongueras	
Daniel Bickey	6
Kyler Christensen	6
Natalie Clark	6
Hannah Cloven	6
Andi Curtis	7
Jenaka Derksen	
John Dolan	
Grace Duckworth	
Kylie Edington	
Jenna Fink	8
Kelli Gajewski	8
Brandon Harrison	
Marcela Izquierdo Poza	8
Amanda Jagdeo	6
Allison Jarrett	
Jacob Katz	
Bailey Livingston	
Faith Martin	
Jennifer Moore	-
Haley Mundy	
Hordy Ndambo	
Deborah Parker	
Nicholas Pietro	10
Eva Pontius	
Ashton Poythress	
Gabriel Quintero	
Jamila Read	
Olivia Richards	
Aleighson Robertson	
Whitley Sadacca	
Talia Santiago	
Erin Schriever	
Jackson Schulte	
Rion Smith	
Megan Westerman	
Stability X	
Mengna Zhao	6, 13

2023

PRESENTATIONS

Cassidy Bell '23, poster

"Investigating Effective Teaching Strategies Focused on Helping Students with Learning Disabilities"

Faculty Mentor: Margaret Schimmoeller, Education

Students with disabilities require teachers who have proper background training, sufficient mentoring support, and use research-based instructional strategies. This study investigated special education teachers' perspectives and researched-based approaches when teaching children diagnosed with learning disabilities. Through a qualitative action research project, a semi-structured interview protocol was followed. The study included two participants taught in public school settings and three participants taught in an independent special education school. The director of the independent school, two novice teachers, and two veteran teachers were interviewed about what helped prepare them for the classroom and what strategies they found most effective. Following the interviews and observations, I observed in three special education classrooms to gather information on instructional strategies. A content analysis was conducted, and data were thematically analyzed to identify common instructional strategies. Using research-based strategies, interviews, and classroom observations permitted triangulation and facilitated exploration of what influences special education teachers' methods.

Daniel Bickey '23, poster

"Rocky Mountain Vibes"

Faculty Mentor: Elizabeth Perry-Sizemore, Economics

During the summer of 2022, I embarked on an internship in Colorado Springs, Colorado. For two months, I was the stadium operations intern for the Rocky Mountain Vibes, a small pioneer league, baseball team. It was the dog days of summer and baseball was in full swing. Our Vibes were fighting night in and night out for a chance to make it to the playoffs and win the Pioneer League Championship. While the Vibes worked tirelessly to reach their goal, it was my job to make sure everything from the bathrooms to the press box to the dugouts were ready to go. I was in charge of many tasks, I even got to be the emcee for a night, but my favorite part of the job was the camaraderie my coworkers and I developed in my short time there.

Kyler Christiansen '23, poster

"Transatlantic Traditions of Germany and New York" Faculty Mentor: Gerry Sherayko, History This poster will give insights to both the traditional winter holidays and the historical sites of both New York and Germany that I was able to visit during the winter break.

Natalie Clark '23, oral presentation

"The Representation of Women in Sports Broadcasting on ESPN shows 'First Take' and 'NBA Today'"

Faculty Mentor: Jennifer Gauthier, Media & Culture Studies

Have you ever noticed the lack of women on live sports talk shows? Has it ever occurred to you how little female sportscasters talk while they are on the air? My research will be focused on the growing role of women in news media and how it has potentially innovated the way we view sports broadcasting. In today's sports media, there is a possibility of a progression of including women in live sports talk shows by incorporating them to speak more on the news that is being streamed. Looking into two contemporary ESPN shows, "First Take" and "NBA Today" will allow the understanding of whether or not the inclusion of women in live sports talk shows have improved and what roles they play when delivering our news. Taking this approach would suggest that some shows are moving away from the traditions of women being presented just for views.

Hannah Cloven '23, Amanda Jagdeo '24, Cristina Berenguer Llongueras '23, Aleighson Robertson '23, Stability X '25, Mengna Zhao '23, poster

"Clay Street Reservoir Design Competition"

Faculty Mentors: Peter Sheldon, Physics & Engineering, Sarah Sojka, Environmental Studies & Science and Physics & Engineering

The Clay Street Reservoir, built in 1829 in Lynchburg, VA, was an early water storage location for the city. Not only was it the first reservoir in Virginia, but also the second in the United States. The reservoir was decommissioned in 2008 and the city plans to turn this historic location into a public space. To that end, the city has initiated a collegiate design competition. A team of six Randolph students from Art, Biology, Environmental Science, Media & Culture, and Physics & Engineering has taken on the challenge. These students will design an aesthetically pleasing natural space incorporating public demand, civil engineering, historical relevance, and feasibility and budget. During this presentation, we will share our detailed plan, which includes a public park with several independent features. Our plan will be submitted to the city in late April 2023, and a public presentation in May.

Andi Curtis '24, poster

"Making Work Study Work for You"

Mentor: Emilie Bryant '22

Work-study is often a large part of the student experience. At Randolph College, students are encouraged to take advantage of work-study opportunities, but in many cases, these opportunities are not taken advantage of fully. In my time as a work-study student, I have been able to gain experience working in a career field that I intend to pursue in my postgraduate life. The purpose of this poster is to provide visual examples of my own experiences as well as to give commentary and advice regarding how to make work-study work for you.

John Dolan M.A.T. '23, poster

"Aiming for Excellence: The Use of Choice during Review Activities" Faculty Mentor: Margaret Schimmoeller, Education

Did you ever feel bored and uninterested in the things your teachers made you do? This action research study took place in my classroom as a first year special education teacher. In a Government class, where I coteach with a general education content teacher, students were permitted to make choices in the classroom regarding what activities we used to review the content that we studied. A pretest to post-test design was used during each unit. The post-test followed a day of review activities. In unit one, I chose the activities, whereas in unit two, the students were able to choose. Unit 1 content covered the Constitution and Unit 2 content covered the powers of the government. I found that more growth occurred from pretest to post-test in unit two where the students were able to choose the activities they did for review.

Grace Duckworth '23, poster

"Diarism of the Cagey: A Reflection of My Senior Art Exhibition" Faculty Mentor: Chris Cohen, Studio Art

As the culmination of my Studio Art studies at Randolph College, I have had the opportunity to demonstrate the expansion of my painting, drawing, and concept development skills by producing an exhibition of my artwork that is currently on display (through mid May) at the Maier Museum of Art. As someone who prefers to keep my personal information private, and locked in close to my chest, I used the exhibition as a challenge to find an alternative route to express thoughts, desires, and emotions that I seldom say aloud. The works in the exhibition are process based, involving the repetition of revealing, obscuring, and re-revealing my innermost thoughts and feelings. This poster offers a viewer a peek into the art making process that not only went into the production of my senior exhibition, but also challenged me to open and honest self-expression.

Grace Duckworth '23, oral presentation

"If You Can Read This, You're on the Bus: Psychedelic Rock Posters as Cultural Identifiers"

Faculty Mentor: Lesley Shipley, Art History

In the mid to late 1960s, people flocked to San Francisco to engage in the counterculture by forming a community that sought to live alternative lifestyles outside of "straight," or mainstream, culture. An important social occurrence was dance concerts fueled by the consumption of mind-altering substances. Attendees of these concerts were informed of event details via colorful and visually striking posters that were plastered around the Hippie-district. A large portion of the posters were produced by a revolutionary group of artists known as "The Big" including Wes Wilson, Stanley Mouse, Rick Griffin, Victor Moscoso, and Alton Kelley. By taking into consideration the iconographic reference to Native American and non-Western cultures and religions, political ideological implications, and formal design qualities that are influenced, appropriated, and invented, I argue that these posters resulted in the creation of a visual language that served to encapsulate and distinguish the counterculture and its participants.

Kylie Edington '23, oral presentation

"Bismarck's Playbook on the Kulturkampf: An Insight into Manipulating Hatred of Fellow Germans and Escaping Backlash" Faculty Mentor: Gerry Sherayko, History and Museum & Heritage Studies

Despite the many studies in modern German history looking at the German Chancellor Otto von Bismarck's policies and how they shaped the political, social, and diplomatic histories of both Germany and Europe as a whole, there has been less extensive research into his legacy of internal scapegoating that began with the Kulturkampf (the vilification of German Catholics, 1872-1878). The literature that does exist often focuses solely on the question of the success of the Kulturkampf legislation. This paper examines how, by using nationalist sentiments and harkening back to a fictionalized past of a better separation of church and state, Bismarck convinced Protestant Germans that their fellow Catholic citizens were domestic enemies. It then looks at why the public supported such laws as well as how the government was able to switch the hatred from Catholics to Socialists without backlash and move public opinion with them. Utilizing primary source materials written by Bismarck and Adolf Hitler as well as a substantial amount of secondary scholarship ranging from the 1940s until the 2010s, this paper also looks at the legacy of this policy, demonstrating how the practice of internal scapegoating, started in the first years following the unification of Germany, continued during the Third Reich (1933-1945), resulting in the mass murder of those Germans labeled as "enemies."

Kylie Edington '23, oral presentation

"The Unspeakable Impossibility: The Evolution of Translation of Symposium into English and Homosexual Visibility in Western Society" Faculty Mentor: Amy Cohen, Classics

This presentation looks at the translation of one text, Plato's Symposium and how the handling of its homosexual content has altered from its first English translation in 1761 until the most recent in 2021. The presentation will focus on showing the relationship between the attitudes of society, better known as historical context, and the choices of the translators of the period to look at change over time. The history of the homosexual community has had a great struggle for acceptance and finding a place for themselves. This struggle can be showcased fully in the history surrounding the text of the Symposium. The presentation will also explain the importance of the modernization of translation to make the reading of queer history easy to access and visible to the community and society in hopes of increasing acceptance and normalization.

Jenna Fink '23, poster

"Effectiveness of Using Math Manipulatives in a Second Grade Classroom"

Faculty Mentor: Margaret Schimmoeller, Education

Do you remember learning how to count in elementary school? Most students learn how to count with manipulatives. Manipulatives refer to any concrete materials, objects, or drawings used during instruction to support students' learning of numbers and operations (Horan, 2018). In my research study, I conducted four weeks of math lessons, two of those weeks included lessons incorporating manipulatives, and the other two weeks did not involve the use of manipulatives. My goal was to test the effectiveness of using manipulatives in a second grade classroom. I did so by examining and comparing test scores from instruction that involved manipulatives versus instruction that did not. I also calculated the growth between pre and posttest scores each week. In my presentation, I will explain the findings of my research.

Kelli Gajewski '23, oral presentation

"The Power of Praise: The Effects of Praise vs. Corrective Feedback on Students Learning"

Faculty Mentor: Margaret Schimmoeller, Education

As a teacher, keeping students on-task while they complete assignments is challenging. The action research project explored the use of praise versus corrective feedback and how each approach influenced on-task behaviors during seatwork. Praise is defined as an instructional strategy administered by the teacher in the occurrence of social or academic behavior (Conroy et al., 2009). According to Conroy

et al. (2009), corrective feedback notifies students of their errors and then provides the correct response while allowing for further practice. Participants were observed for 30-minute increments over six days. The six days were divided into praise for three days and corrective feedback for the remainder. Six of 14 students presented no visible increase in on-task behavior using praise or corrective feedback. Two of 14 students showed an increase of on-task behavior using corrective feedback compared to praise. Four of 14 students responded better to praise compared to corrective feedback. Students showed no visible improvement with one implementation versus the other. Every child is going to respond differently to praise, and corrective feedback administered by the teacher.

Brandon Harrison '23, oral presentation

"Helping Horses Help You"

Faculty Mentor: Amanda Rumore, Biology

Therapeutic riding offers an outlet for people who do not thrive in traditional therapeutic settings. It can also offer a sense of mobility for those who are physically impaired. For my internship, I combined horseback riding with a therapeutic setting as a therapeutic riding instructor in training. I worked with various participants with different mental and physical disabilities. With these riders, I had the opportunity to teach them how to ride horses. I was able to observe how therapeutic riding could help someone with a learning disability overcome their challenges, as well as someone who has mobility issues, exercise the muscles they otherwise do not move. The purpose of this internship was to become well versed with horse knowledge and knowledge of therapeutic riding, as well as work towards getting my certification so that I could become a therapeutic riding instructor.

Marcela Izquierdo Poza '24, oral presentation

"Investigating Navigation Using Smartphone Sensors"
Faculty Mentor: Peter Sheldon, Physics & Engineering

Inertial navigation (IN) has long been used for measurement of acceleration, speed, position and orientation in commercial travel (boats, planes), but the systems are complicated and expensive. These systems are comprised of devices called accelerometers and gyroscopes that may be enhanced by magnetometers, and altimeters. Inertial navigation systems are self-contained and do not require communication with an outside agent (like GPS). We have studied IN using affordable accelerometers and gyroscopes built into smartphones in a long-term project on rollercoasters, and more recently as a replacement for standard introductory physics-lab equipment. Recently we found an exciting anomaly in the iPhone accelerometer that is unmentioned in the literature, which we studied in detail.

Allison Jarrett, M.A.T. '23, poster

"Flexible Seating Effect on Task Behavior in an Elementary Classroom: Give Students Choice"

Faculty mentor: Margaret Schimmoeller, Education

Many first-year teachers set up their classrooms based on their own personal style, forgetting to reflect on developmental needs of children at various stages. In this study, I explored the use of flexible seating, which gives students a choice in where they sit while completing work, and its effect on on-task behaviors. My action research project took place in an elementary classroom over two weeks. Week one followed the typical classroom design where students sat in desk chairs while working and week two included the option for flexible seating. Reading lessons occurred during small group instruction time. On-task behaviors did increase during the flexible seating intervention. I will discuss my experience as a participant researcher and what I learned from this action research project.

Jacob Katz '23, Jenaka Derksen '24, Hordy Ndambo '24, poster "The Role of Situational Stress Induction and Personality Traits on Cheating Behavior"

Faculty Mentor: E. Blair Gross, Psychology

Cheating is a negative behavior that is highly discouraged and largely punished across almost all social groups, but remains common and plagues society in settings ranging from educational institutions (Madara & Mango, 2016) to simple games (Coricelli et al., 2010). Researchers have studied the factors that predict cheating such as fear of failure, stress, and the strongest known predictor, potential gain. Cheating frequency is much higher under the presence of a financial incentive (Charness et al., 2019). In the present study, we assessed the role of both personality traits (sensation-seeking, norm-violation) and situationally-induced stress on cheating behavior. Our participants were 70 Randolph College students. Our results support our hypothesis that the presence of a situational stressor increased the likelihood of cheating behavior. However, our results did not indicate that higher scores on the personality scales were positively related to cheating behavior.

Bailey Livingston, M.A.T. '24, poster

"Learning Made Fun, Teaching Made Easy: Inquiry-Based vs. Lecture-Based Instruction in the Classroom"

Faculty Mentor: Margaret Schimmoeller, Education

Whether you are a student or a teacher you have probably seen your fair share of blank stares or heads down in the classroom. In recent

years, we have seen these disengaged behaviors on the rise. I have seen this within my own classroom experience. Many teachers are asking themselves: "How can I get my students interested?" During this study, I hoped to find an answer to this question. I examined how effective inquiry-based instruction was in promoting student growth, engagement, and critical thinking compared to lecture-based instruction. I hope to discover the most effective way for students to learn and grow. My hope is that inquiry-based instruction brings the excitement of curiosity back into the classroom.

Faith Martin, '23, poster

"Be Fearless"

Faculty Mentor: Chris Cohen, Studio Art

We all have fallen into darkness. Darkness filled with fear. Fear is an emotion that sometimes takes over our minds. We start to think, see and feel things that are not true, like Anxiety, and Doubt. Eventually we see light, and as we get closer and closer, our darkest emotions fade away, and our happiness overtakes us. We become stronger and better people. The objective of this piece was to create a funny, cute, and inspirational animation demo reel for students who go through fear and how to make them fearless. This piece was a progression from my demo animation that I worked on for my senior project at the senior show this year.

Jennifer Moore '23, oral presentation "Antioxidant Properties of Health Bars" Faculty Mentor: Ann Fabirkiewicz, Chemistry

Antioxidants are important compounds that have the ability to neutralize harmful free radicals in the body. A specific type of antioxidant is a polyphenol. Quantifying these antioxidants in foods can help people make more informed food choices. Certain foods, like fruits and vegetables, are known to have a high polyphenol content. The polyphenols and antioxidants were quantified in eight different health bars. This was performed using two assays, the DPPH (2,2-diphenyl-1-picryl-hydrazyl-hydrate) assay that quantifies antioxidants in general, and the Folin-Ciocalteu (FC) assay, which quantifies polyphenols specifically. The DPPH assay found that the Luna bar had the highest amount of antioxidants and the One bar had the lowest. The FC assay revealed that the Clif bar had the highest amount of polyphenols and the Nature Valley bar had the lowest.

Jennifer Moore '23, poster

"Summer in Santiago, Spain"

Faculty Mentor: Maria Vazquez-Castro, Spanish

I was enrolled in a month-long summer language program at the University of Santiago de Compostela and received a B1 level certification in Spanish from the class. The program focused on learning how to speak, read, and write in Spanish as well as provided opportunities to experience Spanish culture. While I was there, I made friends with many locals, visited the landmarks and beaches, took a dancing class, and ate lots of Spanish foods.

Haley Mundy '23, poster

"Abroad in Belfast: A Randolph Student's Experience at Queen's University"

Faculty Mentor: Mara Amster, English

My poster presentation is a reflection of my experiences while studying abroad at Queen's University Belfast in the fall semester of 2022. I will utilize images from Northern Ireland to document my experiential learning, and detail interesting cultural differences with occasional anecdotes. The poster will also touch on my personal growth over my study abroad experience, and serve as an opportunity to showcase a potential experience for fellow Randolph College students.

Deborah Parker '23, poster

"Drawn Animal Anatomy"
Faculty Mentor: Erin Heller, Biology

In the Zoology Lab course (BIOL 2201L) animal dissections are performed to better understand their internal structures. For my poster presentation, I will show the animal diagrams I drew to assist in understanding specific animals covered in the lab curriculum. The diagrams consist of the more complex vertebrate animals like the frog, pigeon, fetal pig, and perch on a large scale and some of the less complex invertebrate animals like the squid, grasshopper, and crayfish.

Nicholas Pietro '23, poster

"Nonlinear Mode Coupling of Oscillating Neutron Stars" Faculty Mentor: Peter Sheldon, Physics & Engineering

The modes of an oscillation are essentially the "basis vectors" of that oscillation. Any oscillation that occurs can be written as a linear

combination of its modes of oscillation. This poster will explain the process of finding the modes of oscillation of neutron stars using different coordinate bases as well as tensor calculus.

Eva Pontius '23, poster

"Designing and Implementing a Climate Resilient Forest Garden at R.S. Payne Elementary"

Faculty Mentor: Karin Warren, Environmental Studies & Science

A forest garden is a landscape designed to mimic the ecosystem of natural forests while focusing on edible perennials. Forest gardens benefit the environment by increasing biodiversity, reducing surface temperatures, improving soil, air, and water quality, and reducing food insecurity, creating community engagement activities, and educational opportunities. I worked on designing a forest garden at R.S. Payne Elementary School. This project involved identifying an area in Lynchburg affected strongly by the urban heat island effect and food insecurity. The goals are to create an area that will be able to withstand the effects of climate change while creating an environment where people can be outside without being scorched by summer heat while enjoying some fresh fruit. We obtained materials to plant a forest garden this spring with funding from the Virginia Foundation for Independent Colleges (VFIC), Virginia Department of Forestry, the Randolph Summer Research Program, and a RISE Grant.

Ashton Poythress '23, oral presentation

"Tracing the Growth of Online Sports Betting since its Legalization in 2018"

Mentor: Jennifer Gauthier, Media & Culture

Have you noticed yourself or any of your friends using an online Sportsbook, such as DraftKings or FanDuel, or an increase in attention to a sports betting advertisement? My research investigates the tactics of the advertisements from the sports betting industry that continue to increase the sports betting population. Through the analysis of advertisements and individuals who are or are thinking about betting on sports, I will gain a better understanding of the forces that drive this industry. Since its legalization in 2018, sports books have generated billions of dollars. How has such a risky investment turned into one of the leading platforms surrounding sports in such a short timespan?

Gabriel Quintero '23, oral presentation

"A Comparison and Recommendation of Inventory-Based Organic Carbon Estimation Methods in Small Virginia Forests" Faculty Mentor: Karin Warren, Environmental Studies & Science

Forests play a key role in the global carbon cycle, sequestering carbon from the air through photosynthesis and storing it in four distinct pools: Aboveground Biomass (AGB), Belowground Biomass (BGB), Dead Organic Matter (DOM), and Soil Organic Carbon (SOC). Estimating the amount of carbon stored in these pools is essential to understanding how forests affect and are affected by rising carbon dioxide levels in the atmosphere. The literature on these estimation techniques has near exclusivity to large forested areas to obtain regional or national carbon storage estimations, but there is no evidence that the techniques will not perform as intended when applied to a small forest. Through comparing sampling methods for each pool, a recommendation can be made to future researchers on the most efficient and effective methods to utilize.

Jamila Read '23, oral presentation

"Teaching Reading is Rocket Science: Effectiveness of LETRS® Reading Program on High Frequency Word Recognition"
Faculty Mentor: Margaret Schimmoeller, Education

Do you remember studying high frequency words in elementary school? I served as a practicum student in a kindergarten classroom observing students learning about high frequency words. The present study investigated clear analysis of the science of reading, specifically the use of the LETRS® (Language Essentials for Teachers of Reading and Spelling) program. The study included a pretest to evaluate students' knowledge prior to instruction about LETRS® Phonics and Word Reading (Moats & Tolman, 2019). The posttest measured student growth of high frequency words after two weeks of instruction using the LETRS® program. Findings showed the use of lessons from the LETRS® program resulted in an improvement in high frequency word recognition.

Teachers who use the science of reading help students develop strong phonological awareness, recognize letter sound relationships and comprehend letters connected to decoding words for students to read more fluently.

Olivia Richards '23, poster

"Installing a Hydroponic System at Randolph College: A Legacy Project" Faculty Mentors: Karin Warren, Environmental Studies & Science and Lindsey Van Zile, Sustainability & Campus Projects Coordinator

Hydroponic systems can be used as a form of urban agriculture as a sustainable option as it provides healthier, community-based food production systems. Hydroponics is a type of agriculture method that involves growing plants without soil, in nutrient-based solutions. Various crops can be cultivated under hydroponics, including leafy greens, tomatoes, peppers, cucumbers, strawberries, and herbs such as chives, basil, mint, and cilantro. The ultimate goal of this project is to implement a functioning hydroponic system accessible to all students at Randolph College. This project directly aligns with Randolph College's Sustainability Plan as a method to address food insecurity across campus. In this project, I consulted with various departments including Randolph Sustainability and Building & Grounds. I also consulted with Mitchell Doss '21, a Randolph graduate and MS student at Virginia Tech, who works with hydroponic systems at Institute for Advanced Learning and Research in Danville, VA.

Whitley Sadacca M.A.T. '23, oral presentation

"Teacher Let Me Dance: Examining the Effects of Play-based and Kinesthetic Learning Activities in a Middle School Language Arts Classroom"

Faculty Mentor: Crystal Howell, Education

The adage that there is a time for work and a time for play finds its way into the classroom, arguably more than any other environment! Did you ever feel like the majority of your day in middle school was spent day-dreaming because you were disengaged from what was going on in the classroom? Did you ever wish school was more fun? In this study, I aimed to increase on-task behavior and students' enjoyment of school by using kinesthetic and play-based learning activities. For my project, I taught two units, one using predominantly direct instruction and the other implementing play-based and kinesthetic learning activities. I hypothesized that by giving students opportunities to move and play when learning, students would enjoy school more, were more willing to participate, and less prone to engaging in off-task behaviors.

Talia Santiago '23, oral presentation

"The Determinants of Antimicrobial Resistance across Europe: A Statistical Approach to Understanding one of the World's Leading Public Health Crises"

Faculty Mentor: John Abell, Economics

What are the determinants of antimicrobial resistance, and why do they matter? Antimicrobial resistance is quickly becoming one of the world's leading public health crises. Increasing financial threat due to antimicrobial resistance may be the guiding motivator for change, as health consequences like severe side effects from secondline treatments and the inability to perform routine procedures are often acknowledged, yet overlooked. With the use of a standard Ordinary Least Squares regression analysis and other supporting tests, the present study investigated the relationship between antimicrobial resistance (AntiRes) and four proposed determinants: antibiotic prescriptions given to humans (AntiPresc), antimicrobial sales in food-producing animals (AntiFPA), poverty (Poverty), and the prevalence of hospital beds (HBeds). Data were collected over one year (2017) and across 27 European countries. Regression analysis of the studied economic model suggests support for the hypothesis that AntiPresc, AntiFPA, Poverty, and HBeds are significant determinants of antimicrobial resistance in Europe.

Talia Santiago '23, oral presentation

"Injury Prevention Programs at the Collegiate Level"
Faculty Mentor: Meghan Halbrook, Sport & Exercise Studies

Injury prevention programs exist to decrease the risk of injury or re-injury, as well as the severity of injury if it occurs. Athletes who participate in injury prevention programs are at a lower risk of injury than those who do not (Mugele et al., 2018). This paper examines the importance of injury prevention programs and aims to find the best practices and components of them. Components may include but are not limited to, physical training, equipment, and sport regulations. This research intends application to the collegiate level but may also hold significance in other age groups.

Erin Schriever '23, poster

"How Do Different Angled Inclines Affect the Accuracy of an iPhone 12's Accelerometer"

Faculty Mentor: Peter Sheldon, Physics & Engineering

Smartphones contain many sensors used in a multitude of contexts. A previous experiment confirmed an anomaly in measurements not yet found in literature, so a new question came to the forefront. An iPhone12 and a PASCO Scientific Accelerometer were attached to carts and sent down an incline to compare their measurements of acceleration. In the past experiment, we saw that the iPhone12's acceleration measurements decayed rather than stayed the same for the duration. This experiment set out to find if there is a correlation between the angle of the incline and the rate that the acceleration decreases according to the iPhone. Finding this will help in the next steps of the overall goal to use a smartphone as an inertial navigation system. Further experiments will need to be conducted.

Jackson Schulte M.A.T. '23, oral presentation

"Making the Standards Interesting: Considering Student Writing Interests during SOL Writing Test Preparation"
Faculty Mentor: Crystal Howell, Education

In this action research project, I tested whether students preparing for the SOL writing test could achieve higher scores on their practice tests if they responded to prompts that aligned with their interests. Rather than practice with repetitive, state-provided prompts, I had students respond to teacher-created prompts that were related to topics they expressed interest in through an interest survey. I hypothesized that allowing students to practice using topics they find interesting would more organically motivate them to improve their scores. Ultimately, I found that my intervention did not have a significant influence on student achievement.

Rion Smith M.A.T. '23, poster

"The Essay-writing Tango: Using the Process-based Approach to Aid Students in Essay Writing"

Faculty Mentor: Crystal Howell, Education

Do you dread writing essays? Do you always need more motivation, or do not know where to start? In this study, I aimed to increase self-efficacy and essay-writing skills using the process-based approach. During my action research study, I taught each step of the process-based approach, which includes prewriting, composing, drafting, revising, editing, and publishing. I speculate that the structure provided by the process-based approach will provide students with an increase in confidence, intrinsic motivation, and students' essay scores.

Megan Westerman '23, poster

"Conference on Policy Process Research"
Faculty Mentor: Aaron Shreve, Political Science

The Multiple Streams Framework states that problems, policies, and politics must combine in order for policy change to occur. Through the Randolph College RISE Grant, I had the opportunity to attend the first inaugural 2023 Conference on Policy Process Research in Denver, Colorado. I heard from one of the most influential authors of the Multiple Streams Framework, Nikolas Zahariadis, and formed connections with others, such as Samuel Workman, the Director of the Institute for Policy Process and Public Affairs at West Virginia University. By attending various sessions on the Multiple Streams Framework, I was able to better understand and incorporate these ideologies into my senior research. I also learned new public policy theories, including by various members of the conference. Through this experience, I learned about various political theories and met fellow members of the political science field.

Mengna Zhao '23, oral presentation

"Unboxing the Representation of 'model minorities' in Hollywood" Faculty Mentor: Jennifer Gauthier, Media & Culture

Indubitably, the biggest winner of the 95th Academy Awards was Everything Everywhere, All at Once (EEAO, Daniel Brothers, 2022), winning seven Oscars including Best Picture (Daniel Brothers, 2022). It became the third Asian/Asian American film to win an Oscar in the last five years. This result perfectly supported a comment from James Hong at the SAG Awards, just a few days before the Oscar ceremony: "We have been told Asians were not good enough and they are not box office, but look at us now."The film was not only recognized by film critics but also made a successful box-office record. In this research paper, I compare EEAO to another recent box office success, which was controversial representation-wise, Crazy Rich Asians (John Chu, 2018). The research aims to find patterns between the two films by examining similarities and differences in how Asian people and their culture are represented.

KEYNOTE SPEAKER

BETH SCHWARTZ

Associate Director of the American Psychological Association's Office of Applied Science

Beth M. Schwartz, PhD, is the Associate Director in the Office of Applied Psychology at the American Psychological Association. She started her career in higher education, first as a faculty member at Randolph College in the department of psychology where she was named the William E. and Catherine Ehrman Thoresen Professor of Psychology, and also served as Assistant Dean of the College. She then served as Provost at Heidelberg University, and finally as Provost at Endicott College overseeing the Division of Academic Affairs.

Schwartz received her BA from Colby College (Maine) and her PhD in cognitive psychology from the State University of New York at Buffalo. She is a long-standing member of APA and a Fellow of APA's Division 2 where she served on the Executive Board. She has been recognized for her excellence in teaching both at Randolph with the Gillie A.



Larew Excellence in Teaching award, as well as through AP-LS, Division 41 of APA, with the Outstanding Teaching and Mentoring Award. Her publications include articles in the *Journal of Higher Education*, and in *Ethics & Behavior*.

Schwartz also continues to author and edit works focused on the scholarship of teaching and learning, including an edited volume titled *Evidenced-Based Tools and Techniques for University Teaching*, and a co-authored book titled, *Optimizing Teaching and Learning: Practicing Pedagogical Research*. Her scholarship also includes a series of books published by Sage that serve as resources for students learning the intricacies of APA style, research design, statistics, and presentations. Her current research focuses on the influence of honor systems on academic integrity. Schwartz was recognized for her scholarly achievements with the Katherine Graves Davidson Excellence in Scholarship Award at Randolph, and the Distinguished Faculty Achievement Certificate from the State Council of Higher Education for Virginia.

The Symposium of Artists and Scholars is arranged by the Center for Student Research.

Special thanks

Dr. Beth Schwartz, Associate Director of the American Psychological Association's Office of Applied Science

Student Scholarship Committee:

Bradley Bullock, Charles A. Dana Professor of Sociology

Luisa Carrera, Administrative Coordintor, Center for Student Research

Jesse Kern, Assistant Professor of Chemistry and Director of Summer Research Program

Brenda Edson, Director of College Relations

Lesley Shipley, Associate Professor of Art History
Holly Tatum, Professor of Psychology and Director of the Center for Student Research

Buildings and Grounds staff
Aramark catering staff
Brenda Edson, Leigh Ann Bush of the Office of College Relations
Printworks, Inc.

It is respectful to enter seminar rooms between presentations and please silence cell phones

Thank you for attending!

