Saint Vincent College

22ND ANNUAL ACADEMIC CONFERENCE

April 23, 2025

2:45 – 5:30 P.M. | SIS AND HERMAN DUPRÉ SCIENCE PAVILION

A multidisciplinary exposition and presentation of student research and academic accomplishments in business, communication, computing, education, humanities, fine arts, mathematics, natural sciences, social sciences and other fields.

FREE ADMISSION

OPEN TO THE PUBLIC

112685-4/2024

Dear Saint Vincent College Community and Friends,

We welcome you to the 22nd annual Saint Vincent College Academic Conference, during which we celebrate the interesting and often innovative work our students produce throughout the year. This conference is a testament to the dedication of Saint Vincent faculty and administrators who encourage and support students in conducting advanced scholarly inquiry and creative work in their disciplines. Saint Vincent faculty dedicate their time to mentoring students in critical scholarship, as well as in classroom projects in the Humanities, Natural Sciences, Computer Sciences, Social Sciences, Arts, and Business. The students who present at this conference have ambitiously seized these opportunities and brought their projects to completion. We are very proud of their work, and we invite you to take part in this event which recognizes their achievement. This conference is an opportunity for our students to enlighten our academic community by sharing new ideas and creative expression.

The Academic Conference is held in the Sis and Herman Dupré Science Pavilion. This venue facilitates engagement and interaction among Saint Vincent College students, faculty, administrators, staff, friends and family. The central atrium and surrounding hallways are the site of art demonstrations and poster presentations from students in diverse disciplines. The classrooms on the first floor of the atrium and the east wing of the complex hold panel sessions that include oral presentations of research and critical analysis papers, literary readings and musical performances. At the Luparello Lecture Hall, senior studio art and digital art & media students display their work. We encourage all attendees to explore the many high-quality intellectual pursuits our conference showcases!

This program contains the schedule of oral and poster sessions and abstracts for each presented project. Please peruse this booklet to find presentations that pique your interest and to learn more about the works our students have accomplished. An electronic version of this program is also available – look for signs around the pavilion with a QR code that will bring you directly to the event program.

Many people have dedicated time and energy to bring this conference to fruition. The faculty, students, staff and administrators who were directly involved in planning the conference are listed in this program. This list, however, is far from comprehensive in recognizing the many individuals who extended themselves at this busy time of year to make this conference possible. This conference is truly a community-wide effort.

We hope that you emerge from your time at the conference with a fuller appreciation for the intellectual dynamic that lies at the center of our work at Saint Vincent College.

Sincerely,

2025 Academic Conference Co-Chairs

Terrance Smith, DBA
Department of Business Administration

Peter Smyntek, Ph.D.
Biological Sciences Department

Saint Vincent College
Twenty-Second Annual Academic Conference

2025 Academic Conference Committee

Dr. Terrance Smith, Co-Chair

Dr. Peter Smyntek, Co-Chair

Dr. Derek Breid

Dr. Sarah Dumnich

Dr. Devin Fava

Dr. Tim Kelly

Dr. Paige Parsley

Dr. I. Mitch Taylor

Donors

Support for the Academic Conference is given in memory of
Dr. Greg Howard C'68, by Donna Howard.

Acknowledgements

The committee wishes to thank everyone who helped to prepare for this conference. We especially thank the following people and groups for their assistance:

Mr. George Fetkovich, for designing the cover and promotional materials

Saint Vincent College FMO staff, for their efforts in setting-up for the event

Ms. Kaylee Goykovich, for assisting in the creation of the abstract submission form

The students and committee are also grateful to the faculty who assisted the students with the preparation of their work. Names of faculty sponsors appear in their students' entries in this program.

Grant Support for Student Research

The following grant programs support student-designed research and study at Saint Vincent College. Individual project entries indicate grant-supported projects, where applicable, throughout the program.

The A.J. Palumbo Student Research Endowment

Established in 1996, the Palumbo grant program supports student-initiated learning and discovery in the arts, sciences, humanities and professional programs. Grants are awarded on the basis of proposals submitted by the students and reviewed by a committee consisting of both faculty and students. The endowment memorializes the late Mr. A. J. Palumbo, a noted Pittsburgh industrialist.

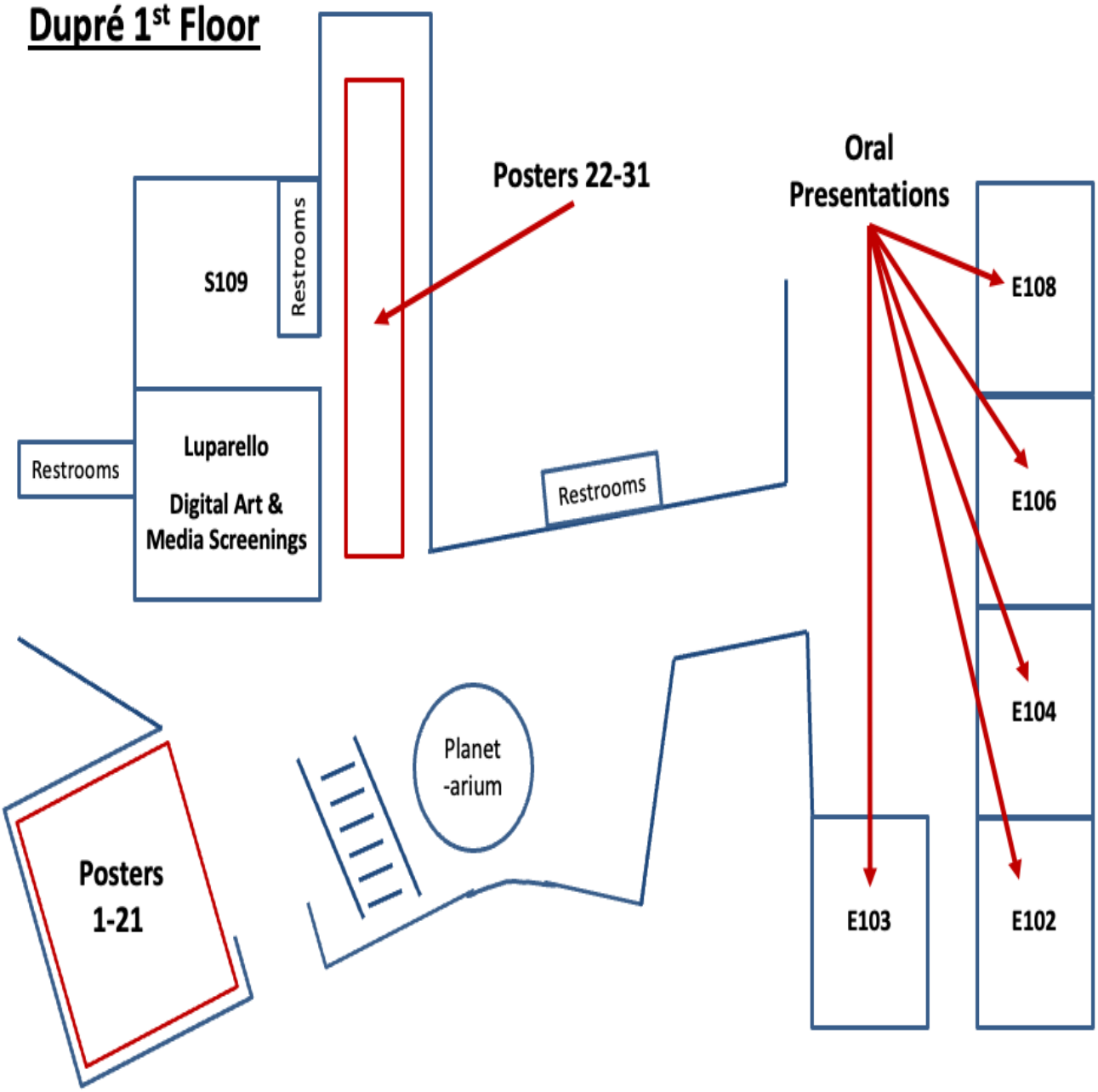
The Elizabeth and Tom Andreoli Traveling Scholar Endowment

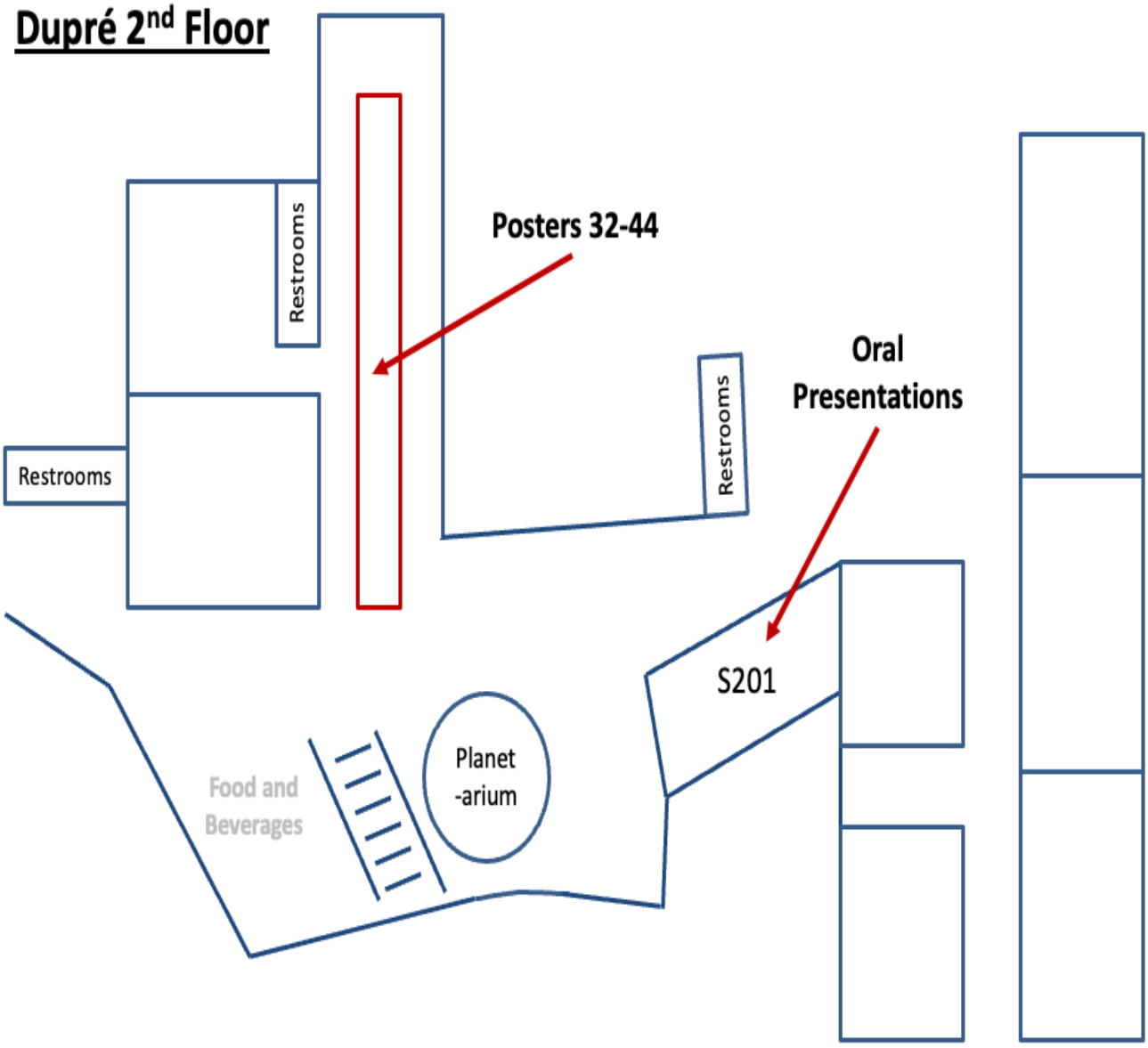
Established in 1997, the Andreoli Traveling Scholar Endowment funds students who wish to enrich their education through special opportunities that require travel in the U.S. or abroad.

Overview of Oral Sessions

Time	Luparello Lecture Hall	E102	E103	E104
2:45-4:00	Digital Art and Media	Psychological Science	Criminology	Engineering Design
4:15-5:30	Digital Art and Media	Comm and Media Studies/ Engineering/ Computer Science	Data Science	Engineering Design

Time	E106	E108	S201
2:45-4:00	Politics and Philosophy	Mathematics	English
4:15-5:30	Biology and Biochemistry	Engineering Capstone	History


Dupré 1st Floor
Posters 22-31
Oral Presentations
S109
Restrooms
Restrooms
Luparello
Digital Art & Media Screenings
Restrooms
E108
E106
E104
E103
E102
Planet -arium
Posters 1-21


Dupré 2nd Floor
Restrooms
Posters 32-44
Restrooms
Restrooms
Oral
Presentations
S201
Food and
Beverages
Planet
-arium

Engineering Art Display: All Sessions
Dupre' 2nd Floor

Rapid Fabrication Projects (ENGR 328)
Joseph Nace, Kristen Prince, Matthew Sadusky, Tyler Horn, Caden Horton, Michael Iuzzolino, G. Joseph Jafarace, Eduardo Richa, Zachary Ridilla, Lily Rush, and Antonio Scalamogna
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline(s): Engineering

Rapid Fabrication (ENGR 328) introduces students to a variety of manufacturing/prototyping techniques through fast-paced projects. Students design and build several different products using SolidWorks, laser cutters, thermoforming, molding and casting, and 3D printing. Student projects will be on display at this exhibit.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

Jessica Bald
Latrobe, PA
Major: Digital Art + Media

Dancing Around Life

I've always been dancing, whether it's down the aisle of a grocery store or in my living room with family I always find the time to dance. anytime I needed to lift my spirits I turned on some jams and danced away the negative feelings I am in my own world tapping my feet to the song in my head.

When I wasn't dancing, I found myself wanting to tap my foot to a song I had recently listened to or hoping my roommate was away so I could have a solo dance party. When I was younger, I would put on dance routines in our one living room when no one was in the room, I just always loved to dance whether it was making my dolls dance or playing Just Dance on our Wii. Everything I have ever done has been a constant winding journey; I have always been a trier of things. I dabbled in gymnastics, soccer, track and 4-H and found out that they weren't quite for me. I found some peace in drawing and painting. However, the perfectionist in me gets upset when it isn't a gallery worthy piece of art. I have dabbled in so many extracurricular activities and found some I straight up did not enjoy and others that I found certain aspects exciting.

I have already gone on a winding journey to get me to this point in my life, choreographing a "dance" to depict my adolescent times and each choice I make moving forward will continue to create flowing choreography for my entire life's journey.

William Beck
Saint Mary's, PA
Major: Digital Art + Media
Minor: Communication and Media Studies

Grenade of Art

Art is everywhere, from the clothes that we wear, music we listen to, and the software that we consume from our electronics. My work is a grenade being thrown into a white room with different types of art and media splattered on the walls, creating something different and engaging.

Photography and videography are the most engaging ways I tell my stories. With one click of a camera, you can capture fragments of the Milky Way and other galaxies with billions of planets that could potentially tell the story of living life beyond our own. Through videography, I can capture a special moment of an athlete prevailing and excelling on a play that he or she will remember for the rest of their life as something that becomes part of their personal legacy. I have the pleasure to capture that story of these individuals so they can live on and be seen by generations.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

Capturing the world around me is just one way I create art, but creating something from scratch allows me to use 100% of my creativity. Concept art, illustrations, and animations give me the freedom to craft characters and worlds that are unfamiliar with reality. Using this skill set allows me to break the rules of traditional reality and let my mind and ideas run freely, limitations or rules do not exist in my work, as long as it results in a product that is fun, interesting, and engaging.

Ideas and creative thoughts continuously surround me. Art has given me an escape and ability to release those ideas. Every project is a new explosion of inspiration, each fragment, something completely different. A grenade throw of different arts and media.

Aidan Clark
Ligonier, PA
Major: Digital Art + Media
Minors: Communication and Media Studies

My Mind is a Universe

Art is something deeper than just marks on a paper or a video shot and edited with intention. It's a reflection of the universe, filtered through the creative minds of everyone leading to a new and unique universe within our minds. Each universe is different and
contains many smaller galaxies and worlds that each contain creative thoughts, that can either be separate from other parts of the universe or connected in some way.

My goal is to share as much of my own personal universe as possible and have it become more real than ever before. Whether it is sad, awkward, happy, or simply just for fun, each world has its own purpose and expresses a small part of myself. Each creation teaches me
more about myself and how I view the universe. Being creative is confusing and unorganized, but through art I can give myself a better understanding of myself and the universe.

I want to get to a point where abstract thoughts flow like rivers and where the reality we live in unites with the symbols within my universe. Eventually leading to my universe existing within all our realities.

Colin Coleman
Bronx, NY
Major: Digital Art + Media

Untitled

Art isn’t just picking up a pencil and drawing something or picking up a paintbrush and start painting something. Art is what you make it to be and how you express it to others. Through fashion, people can create bonds, start trends, and help others be comfortable in what they want to wear.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

I'm from the Bronx, New York, where fashion tells a story. Ever since I was young, I have always been into art and being creative. Like traditional art forms, fashion involves creativity, innovation, and a deep understanding of aesthetics. Designers use fabrics, colors, textures, and patterns as their medium, crafting pieces that reflect cultural, social, and personal narratives. Fashion can challenge norms and inspire change, much like a powerful painting or sculpture. I love fashion because it is a living wearable art form that evolves with time, influenced by historical events, technological advancements, and individual creativity. Through fashion, I can communicate my identity, status, and even my innermost thoughts and feelings, making it a profound and ever-changing art form.

Nathan Cooper
Mount Pleasant, PA
Major: Sports & Media

Master of None

I'm a jack of all trades, but a master of none. Being a master of none allows me to have experience, and to be versatile in every part of digital art. I may not be the best at one thing, and that's okay because being the best at one thing isn't for me.

I wanted to learn everything about this field. The videography, photography, graphic design, postproduction, all of it. While diving deep into one field can be helpful, having a shallow understanding in all fields and learning as I go is where I can thrive and be helpful the most. If an area needs a video guy, I'm there. If an area needs a photographer, I am there. If all the areas just need some extra help, I will be there too.

A master of none is someone who can work with everyone on anything. Someone who can fill the gaps that need filled. Someone who can be the overseer of all work and touch up anything that is needed. Someone who can be an anchor for the team. Someone who can learn from their past and apply those lessons to their future projects. That is me, the master of none.

Seth Cooper
Mount Pleasant, PA
Major: Sports & Media
Minor: Communication and Media Studies

Out of the Blue

My work is unpredictable, or as I'd like to call it, "Out of The Blue." I don't have a signature style, and that's exactly how I want it. When people see my work, I don't want them to recognize it as mine, but I want them to be caught off guard and experience something unexpected every time. Audiences could see a poster for a horror movie and then see a kid's cartoon graphic. They will be always left on the edge of their seat.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

I thrive on change, unlike many artists who develop a distinct theme or recognizable approach. My creativity isn't confined to the same style, medium, or technique. Whether it's video editing, graphic design, or storytelling, I explore different forms of expression, always pushing myself to create something new.

No two pieces I create will ever look or feel the same. My goal is to challenge myself and my audience and keep them guessing about what I'll create next. I feel free not confining myself to a style, and it is only going to make me a better artist going forward in my career.

My work is "Out of The Blue," and I wouldn't want it any other way.

Sarah Hartner
North Huntingdon, PA
Major: Digital Art + Media
Minors: Theology, Marketing

Uncomprehended

"We can only speak rightly about him if we renounce the attempt to comprehend and let him be the uncomprehended." - Joseph Ratzinger

In my Theological studies, I have learned to make connections from my faith to the mystery, complexity, and yet simplicity, in every-day life. Because we can never speak of God perfectly, I believe that visuals hold importance to make connections that do not require words, but instead the beauty He created.

As a result, my work tends to have an underlying theme of Creation. In photography, nature draws my attention. In design, I have the ability to visually combine ideas to get a message across, and I have had the opportunity to produce designs centered around faith. In videography, I enjoy capturing moments and highlighting the beauty in the mundane. Though not always explicitly, my work displays the beauty of Creation.

Over the years I have grown to know God as He has revealed pieces of wisdom to me through nature. Specifically, I have learned that two opposites do not have to exist in contrast but instead can live complementarily. As the world was formed, and as I was formed, these dichotomies and pieces of wisdom and truth in nature were also constructed thoughtfully, carefully, and lovingly. Combining visual art with faith speaks the truth of Creation; that in exploring it we learn of our Creator.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

Natalie Homison
Zelienople, PA
Majors: Digital Art + Media, Communication and Media Studies

Essence

Beauty can be found everywhere. It flourishes when we take the time to recognize and celebrate the unique details that set each person, object, or idea apart. At the heart of my creative process is a desire to uncover and amplify these defining characteristics, to bring out the best in every project and create something that truly resonates.

I am drawn to beauty not just in art but in the world around me. I find inspiration in nature through organic shapes, harmony of color, and living elements working synergistically with one another. Creativity is a process of discovery, an opportunity to refine, enhance, and illuminate what makes something distinct. My focus is not on imposing a personal aesthetic but on allowing each piece to reach its fullest potential in the way it is meant to.

Empathy is central to my artistic approach. I don't just know my art, I feel it. I strive to create pieces that feel intentional, thoughtful, and inviting, something that welcomes rather than excludes. Whether bold or understated, my goal is always to enhance the essence of what I am creating, ensuring that it feels whole, seen, and fully realized.

Art and design are about more than self-expression; they are about elevating ideas and revealing their truest form. Every project holds something special waiting to be uncovered, and my purpose remains the same across all mediums—to illuminate, enhance, and bring forth the best in every creation.

Caitlin Hopkins
Lower Burrell, PA
Major: Digital Art + Media
Minors: Marketing, Communication and Media Studies

With No Training

Music has been a foundational part of who I am since I was a little kid. I've always been drawn to instruments and the process of songwriting and production, and I now play 6 instruments. However, with this passion that has shaped me into who I am today, I have had zero "official" training. Being self-taught in every aspect of my hobby, I've always had this conflict where I feel confident in my skills because of the longevity in which I've stuck with learning and practicing my instruments, but I always feel like I lack the same level of experience of those around me in the same hobby.

As I reflected on this, I came to the realization that many aspects of my life follow this same pattern. I

jump into new hobbies, sports, and passions with zero training. There's a timeline in which I can recall the same conflict. For example, I suddenly jumped into soccer in my formative years, and it had a significant impact on my development in character and the way I approach new endeavors. Soccer was not for me, but it gave me the confirmation of the other possible outcome of leaping into a new activity- I either like it, or I don't. It's as simple as that.

Because of this, the same pattern presented itself when I randomly tried theater here at SVC. I turned in my audition sheet for my first show, and it was practically blank with the lack of vocal and performance training. I felt pretty indifferent and went into the audition thinking I would simply either like theater and stick with it or do the show and then find something new.

However, coming in with zero training and feeling like I didn't do it the "right" way progressed to now a variety of shows and experience under my belt, and a newfound love for performing and theater.

I jump into things "with zero training", and let the experience guide me to confidence.
These new experiences then become foundational in who I am and who I become.

Sullivan Kennedy
Navarre, OH
Major: Digital Art + Media

Building My Story

When we reminisce on our most important and fondest memories, we often recall not just the emotions we felt, but also the surroundings that framed those moments. The scenery – the colors, textures and details – often mirrors the emotions we were experiencing at the time. Set design in a play or film can shape the environment and enhance deeper layers of emotion portrayed in the production. Designing and building a scene that perfectly reflects a specific moment can be a deeply creative process, transforming a simple space into something visually stunning that resonates with the viewer.

Designing a scene or setting plays a pivotal role in shaping the emotional atmosphere of a production. In plays and films, where the setting constantly shifts from one scene to the next, the set becomes a powerful tool for influencing the mood that involves a delicate balance of communication and research to create a cohesive and functional set. I find that transforming the environment through lighting, props and overall design can help evoke the intended emotions of each moment. This process requires me to be both fluid and attuned to the tone of the story, adapting the set to reflect the changing emotional landscape and ensuring that each scene is emotionally impactful.

Set design is an area that I never anticipated being drawn to, but it perfectly resonates deeply with my artistic expression – creating something beautiful that often goes unnoticed by the audience. I understand that throughout my career, I will continue to develop new skills and deepen my knowledge of design, as there's still much to learn. For this reason, my personal philosophy can be summed up as "Building My Story," reflecting how my life is shaped by each experience, gradually building the narrative of who I am.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

Adam Koscielicki
Loveland, OH
Major: Sports & Media
Minor: Marketing

Let Me Change Your Mind

I create to convince.

Some people create because they can make beautiful things. Others create because it gives them life. I don't fit into either group. Most of the things that I have created have simply been created because someone told me to, because a video needed to be made to recap an event, to promote an event or to sell something.

However, I can easily find passion and motivation in creating these things that need creating. I find the most satisfaction in knowing my work has turned attention into conviction, conversion, and convincing. Being tasked with making content designed to get people interested in an upcoming event makes me more excited than being tasked with any other video. I loved hearing that my funny shows made people laugh, but I love hearing a boss or client that is pleased with my work even more.

I want to promote anything and everything. I want people to view my work and go buy something they didn't know they needed. I want people to view my work and be convinced to attend something they thought previously was silly. I want people to view my work and think about what they missed out on. I want to change people's minds. I want to change viewpoints and ways of thinking. Some of the most convincing videos over the years have been commercials, these videos are designed to change someone's opinion or to drive someone to buy something, and we still remember the good ones years later. This is the goal that I strive to achieve, to make something so convincing that it changes opinions years after it's been created.

Koron Lambert
Baltimore, MD
Major: Digital Art + Media

A Designer's Vision

As a graphic designer and a founder of my clothing brand called "Low Motion the Movement", my journey is a testament of struggle and creativity. It represents who I am as a person and as a designer. My designs are aesthetics and have a meaning behind them, reflection of creativity and letting people see my vision through my design eye. In my work, the word "struggle" is an intrinsic part of my creative process, it is the friction that sparks innovation, the obstacle that forces us to think differently and pushes boundaries. In my work, struggle manifests as the countless hours spent perfecting a design. It is through my struggles that my creativity is honed, and my vision is sharpened.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

In responding to my struggles, creativity is my way of guiding me through, turning challenges into opportunities. In my mind as a graphic designer, creativity is a dynamic and fluid process, constantly evolving and adapting. The ability to see potential where others see obstacles, to find beauty in imperfection, and to create something meaningful from the chaos.

My clothing is an extension of this mindset. Blending art and fashion to create designs that are both visually striking and meaningful to those who wear it. It focuses on expressing myself through fashion and art, being able to represent who I am through my style and design is what I strive to promote and create. It is a celebration of individuality, resilience, and the creativity to overcome any adversity in life.

As a designer, there is a constant interplay between struggle and creativity. I continuously navigate through a world of constraints and possibilities, seeking to create designs that not only captivate the eye but also resonate with the soul. My designs reflect my experiences, my passions, and my commitment to my craft.

Reilly McKay
Ligonier, PA
Majors: Digital Art + Media, Communication and Media Studies
Minor: History

Digging in the Sand

When I make a video, I often feel like a child at the beach digging for sand crabs. I'll pick out a spot on the beach, sit down, and begin mining for crabs. With each new crab that I get, I place it in my bucket. Sometimes what I think is a crab is just a rock, yet I keep it and place it in the bucket. Regardless, when I find something in the sand, I'll pick up my bucket and move to a new spot along the shore and keep digging.

Picking out a spot on the beach is just like settling on an idea for a video. I can choose to sit anywhere along the beach, just like how I can choose any idea. I will often spend too much time looking for a cool spot. I learned that any idea can be a cool idea, I just have to have the right mindset going into it. Ideas often come to me in flashes, where I can imagine feelings or situations. I follow these instincts until I get a more fully formed idea.

Once I settle on my spot, I dig. Each grain of sand represents a different aspect of the process. I write, cast actors, shoot, and edit. With each step or grain of sand, I get closer and closer to grasping the finished product: the sand crab…or a rock.

Ultimately, I just like playing in the sand with my friends.

Digital Art and Media Displays: All Sessions
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Colleen Miller
Mount Pleasant, PA
Major: Digital Art + Media
Minor: Communication and Media Studies

Always Blooming

My art, like a blooming flower, is constantly evolving. As I discover new creative outlets, fresh petals unfold, reflecting the endless potential I have for expression. To define my work by a single style or medium would be an injustice to who I am, as my creativity knows no bounds.

I work across a variety of fields, including social media design, branding, illustrator, and photography. Whether I'm painting, designing, or embellishing objects with hundreds of rhinestones, my focus is always on infusing new life into everything I touch. The possibilities are limitless, and it's difficult for me to claim mastery in just one area, because I'm continually exploring new avenues.

Inspiration comes easily when beauty surrounds us in our daily lives. My personal creations often lean toward soft pastels and floral imagery that contain a feminine touch, but I am always open to adapting my style to suit each project. While I may not always get to use my preferred color palette, a piece of my identity will remain in every work I create, no matter the subject.

Change and progress are integral to my process. Each shift brings me a new perspective, guiding me to evolve alongside my work. The Colleen of today won't be the same as tomorrow, just as a flower constantly blooms and transforms in regards to its environment.

Alex O'Connell
Ellicott, MD
Major: Digital Art + Media
Minor: Studio Art

Molding into a Character

I consider myself to be a piece of clay that, over time, will be molded into something amazing. As an artist, I am always looking for new ways to improve and grow. For every story and character I make, a new mold is added to my clay. I am the consolidation of all those forms. The more I make, the more the clay figure emerges into my character. I consider myself just like a character that I create. Creating characters is my medium; it involves digital and classic art. However, my characters are not limited to the medium they are limited to my imagination. My motivation is my goal in life; it is not only to create characters that come to life but also to make sure my character development is seen so that the world can see and be inspired by it.

My work illustrates my journey and reveals it. Just like clay, my characters change and evolve. I learn to be like clay because I always want to find new ways to get new shapes and forms. Regardless of the

application I learn and grow, the clay constantly continues to reshape. In the end, I am still learning, and I will continue to learn throughout my life. My goals won't change, but artistic ways may.

Clay is a medium that, when wet, can make amazing things, but if it dries up, then the character is ruined. My imagination is what keeps the clay wet.

Stacie Renee Ramos
Chula Vista, CA
Majors: Digital Art + Media, Marketing

Palutang

"On my tray is a mix of perfectly symmetrical and horribly uneven palutang. Coming to embrace my Filipino-American identity was hardly revolutionary, but I could feel myself getting kneaded together, a blend of my inherited culture and the one given to me by the place I was born in."

Four years ago, I wrote about this in my Common App essay—how embracing my Filipino-American identity felt less like a revolution and more like kneading together two cultures, shaping something imperfect but whole. I thought I had it figured out. But then college happened, and everything shifted again.

I changed my major. Then I added a minor. Then I changed my mind and double majored. I played sports, joined clubs, balanced honors courses, lost sleep over projects, and spent too many hours gaming. I was a student, an artist, an athlete. Filipino, but sometimes not. I'd go home, eat my food, speak my language, then return to school and feel like I had left that part of myself behind.

Art was the same way. I could draw, design, edit, paint, sculpt, embroider—if it had a creative outlet, I've probably tried it. But I never stayed in one place long enough to master anything. For a while, I wondered if that was a flaw, this constant shifting, this inability to stick to one label or one path.

But maybe that's the whole point. I am a collection of things, a blending of pieces that don't have to fit into one mold. A full circle, always returning to where I started, yet somehow infinite.

Palutang, Stacie Renee.

Sabine (Beanie) Strickland
Niceville, FL
Major: Digital Art + Media
Minor: Marketing

Moments in Motion

Growing up all over the world and playing different sports has shaped who I am, both personally and

creatively. Sports have always been a big part of my life, and that passion naturally evolved into storytelling through digital content. I love creating visuals that bring the energy, emotion, and excitement of sports to life, especially for social media. It's about sharing moments that inspire, connect, and resonate with people. I want to keep growing in this field, creating content that celebrates the stories behind the game.

My creative process is driven by a love for dynamic storytelling. I use tools like Adobe Suite and Canva to craft visuals that feel alive—bold colors, layered compositions, and dynamic motion that reflect the intensity of the game. Every project is an opportunity to explore new ways to translate movement into visual form, keeping my work fresh and immersive.

One of my most impactful experiences was studying abroad and interning in Seoul, South Korea. I worked with a fitness company, creating social media content and learning firsthand how to connect with different audiences. That experience taught me a lot—not just about content creation but also about adapting to new environments, understanding global trends, and finding my creative voice. It pushed me to think differently and helped me grow both personally and professionally.

Through my work, I want to do more than just showcase game highlights—I want to tell the stories happening in between. The build-up, the split-second decisions, the unspoken camaraderie. Sports are always in motion, and so am I. Whether it's on the field, behind the camera, or exploring new places, I'm drawn to movement and the emotions it carries. My goal is to create content that captures not only the action but also the energy and emotion that make every moment meaningful.

At the heart of my creative philosophy is a simple belief: "Every moment in motion tells a story." My work is an invitation to experience those moments—whether in triumph, struggle, or celebration—and to find connection through the universal language of sports.

Roman Tortorea
Pittsburgh, PA
Major: Communication and Media Studies
Minor: Digital Art + Media

Roman: An Autobiography

My work reflects my faith and how far it has taken me over the past four years. I have always thought that being creative pushes my spiritual life and deepens my connection with God. Creativity is a unique gift that represents the individual on a deeper level. It shows their true self and what they are capable of.

I enjoy using different forms of art to show off my creativity in unique ways. Digital art is a passion of mine. The convenience of being able to create different works of art on a computer or tablet allows me to use my creativity to its fullest potential. Visual art is what appeals to me the most. Creating something that is visually pleasing and meaningful is what art is and is what I strive to make.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

My artistic process is simple. I create things that are meaningful to me. If it is a Bible Quote, I heard or a great memory I have, I create based off of these feelings. My motivation for being creative is to grow my spirituality. To make something that people can look at and feel a connection with God and be inspired to be creative.

Anastasiia Umrysh
Lviv, Ukraine
Major: Digital Art + Media
Minors: Marketing, Communication and Media Studies

Life from Scratch

Art has always been my way of making sense of the world—a world that, for me, has been anything but stable. I've had to start my life from scratch more than once, rebuilding everything from the ground up after unexpected changes. Every time I was forced to move, adapt, and redefine myself, art was there, helping me process those experiences. It wasn't something I planned to pursue—it just became a part of me along the way.

I was born and raised in Ukraine, surrounded by a rich culture filled with vibrant patterns and bold colors. Ukrainian embroidery and folk art were part of my childhood, but I never imagined that these memories would later influence my artistic style. When the war started, my life changed overnight. I had to leave everything behind, moving from country to country, learning new languages, and starting over again and again. That's when art found me. It became my safe space, a way to express emotions I couldn't put into words. Art wasn't just a hobby—it was a way for me to reconnect with my roots while navigating an unfamiliar world.

Much of my work reflects this idea of starting over—exploring themes of memory, change, and resilience. Through design, photography, and painting, I capture fragments of my journey, preserving moments that might otherwise be forgotten. But illustration has given me a different kind of freedom. I love creating cartoonish characters and playful visuals that feel lighthearted yet still carry pieces of my story. It's where I can let go, experiment, and embrace creativity without boundaries. The bold colors, exaggerated forms, and dynamic compositions in my illustrations reflect that sense of joy and exploration—like a reminder that starting from scratch can also be fun.

No matter where life takes me, art is the one thing that stays constant. Whether I'm working with digital design, traditional painting, or exploring new forms of illustration, my work holds pieces of the life I've rebuilt over and over. Even when everything else feels uncertain, art grounds me. It's my way of preserving memories, making sense of change, and finding beauty in starting over.

Starting from scratch isn't easy, but it's a part of who I am. And through my art, I'm learning that every new beginning holds a story worth telling.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

Catherine Van Haute
Baton Rouge, LA
Majors: Studio Art, Theology
Minor: French

The Divine Human Condition

How marvelous it is to be alive. How wonderous it is to be able to love, to feel compassion, empathy, bliss, excitement, even sorrow and suffering. What a divine mystery it is to be human!

It seems the common consensus today is that life is meaningless and without inherent value. How far from the truth that is! My art works to disprove these notions and restore a truthful point of view that even in our faults and our sufferings, our lives are good, meaningful, and deserving of love. I create pieces that communicate the many layers of the human condition through relationships with others, ourselves, and, most importantly, our relationship with God. My spirituality and studies in Theology inform my work and allow me to thoughtfully explore the beauty and magnificence of our humanity. We have become so detached from our humanity that we have forgotten how wonderous it is to be alive and how magnificent it is to have a creator who knows us and loves us.

With oil paint, I am allowed the freedom to manipulate colors and expressions to accurately communicate a piece's subject and meaning. I rely heavily on my intuition and emotions during the artistic process. Each piece starts out as a specific, indescribable sentiment that I then must translate onto canvas. My art is not necessarily meant to be an aesthetically pleasing piece of decor, but rather, each piece is a revelation that must be shared with others. If my art stirs any level of contemplation in a viewer, then I have succeeded in my vocation.

Justin Wodarek
Finleyville, PA
Major: Sports & Media
Minor: Business

Landscaping as an Art Form

At Woody’s Landscaping, we see landscaping as an art form—one that bridges the gap between nature and human expression. Our themes are rooted in the belief that outdoor spaces should not only enhance the environment but also evoke emotion and tell a story. Through thoughtful design and sustainable practices, we create landscapes that are as functional as they are beautiful, blending natural elements with personal vision.

We communicate our message through every project we undertake. Whether sculpting a garden from scratch or enhancing an existing landscape, we choose plants, materials, and features that align with the client’s vision, while respecting the landscape’s unique character. Each space we create is a collaboration—a reflection of both our craftsmanship and the personality.

Digital Art and Media Displays: All Sessions
Luparello Lecture Hall
Faculty Sponsor: Mr. David Safin

Our approach is deeply rooted in sustainability, considering not just the visual impact, but prioritizing eco-friendly materials to ensure that the landscapes we build are not only aesthetically pleasing but also environmentally responsible.

In every design, we strive to evoke a sense of connection—whether it's a tranquil retreat for relaxation or a vibrant space for entertaining. The landscapes we create are meant to inspire, engage, and endure, leaving a lasting impression for years to come.

Oral Session 1: 2:45pm – 4:00pm

E102
Psychological Science
Dr. Mark Rivardo

The Influence of Context on the Processing Fluency of the Album Trout Mask Replica, Michael Azinger
Social Media and Attention, Kaley Lazere
Alcohol Use, Family History, and Nicotine Dependence as Predictors of Anxiety and Depression, Ariel Beard

E103
Criminology, Law and Society
Dr. Kayla Jachimowski

Is There a Contrast of LEO Leaderships Between Men and Women? Madison Cassidy
Violence Risk Assessment: Effectiveness in Reintegrating Offenders', Madison Arnold
Ethical Implementation of MAOA Screening, Spencer Millay

E104
Engineering Design
Dr. Adam Wood

Design and Build of a Hydrodynamic Water Tunnel,
Team 1: Sang Gomez, Dominic Denardo, Ethan Moyers, and Nicholas Jackman
Team 2: Elizabeth Dudley, Hailey Rossman, Brianna Sciore, and Julie Evans
Team 3: Zachary Ridilla, Garrett Navitsky, Caden Horton, and Nikola Buffone

E106
Politics and Philosophy
Dr. Jason Jividen

Consciousness and Brain Death, Sophia Bringman
Senior Thesis - Philosophy: The Sexual Identity of the Human Person, William "Mac" Nowalk
Beyond the Barricade: Tocqueville, Hugo, and Their Conceptions of Equality, Rebekah Bollman
Clearing the Debris of Natural Disaster Management Policy, Tanner Adomaitis
Substantive Due Process in a Post-Dobbs World: Reassessing Unenumerated Rights, Jacob Mock

E108
Mathematics
Dr. Sarah Dumnich

App Development Insights: Optimizing User Rating Through Data Analysis, Joshua Havrilla
Is Offence in Baseball Change in Any Way Over the Years? Deven Haywood
Positional Spending and Team Success in the NFL, Benjamin Yeskey
Predicting Sales at a Local Dress Store, Kirston Norton
Modeling Quasar Peak Brightness Over a Narrow Redshift Range, Matthew Vanden Berk
How to Win More Hockey Games, Anthony Barle **The Accuracy of Different Valuation Methods on Stock Price Predictions,** Mattia Speretta
Predicting the Number of Wins for Each MLB Team, Ethan Dutka

S201
English
Ms. Mallory Saylor

A Duel of Blood, Gabriel Seevers
"Shell Searching," Marisa Hooper
The Unbearable Heaviness of Being Alone, Sophia Nelson

Oral Session 2: 4:15pm – 5:30pm

E102
Comm and Media Studies/ Engineering/Computer Science
Dr. Jessica Harvey

Revisiting Conversational Rituals: Gender Dynamics in American Workplace Communication,
Madeline Klun
"Breaking the Ice:" Political Disclosures and Privacy Management Theory",
Marisa Hooper
CIS Rooms, David Richman, Nathan Caldwell, Chris Hopstetter, Thomas McLaughlin, and Abigail Leskovansky
Decision Making Across the Curriculum, Lizzie Dudley and Jamison Ives

E106
Biology and Biochemistry
Dr. Jennifer Koehl

A Study Determining the Presence of Phytochemicals in the Western Pennsylvania Spearmint Plant Necessary for Zinc Oxide Quantum Dot Capping , Thomas Anand
Induced Antibiotic Resistance in Clinical Pseudomonas Aeruginosa (2025),
Anna Kozemchok
The Effects of Cannabidiol on Bacterial Growth and Probiotic Interactions,
Lydia Lieb
Assessment of the Effects of Synthetic Azo Food Dye, Red 40, on Interleukin-23 in DSS Induced Adult Male Swiss Webster Mice, Evan Brozenich

E103
Data Science
Dr. Mary Boland

Looking at Sentiment in Market and Financial Insights at T. Rowe Price, Federated Hermes and Commonwealth Financial Network, Noah Baker, Ethan Dunsey, and Mason Seftas
Exploring the Role of Sentiment in Market Insights at BlackRock, Federated Hermes, and Merrill Lynch: A Data Science Capstone Project, Matthew Wilkinson, Jacob Polosky, and Alejandro Martinez
Investigating Market Emotions Using Sentiment Analysis and Market and Financial Data from Morgan Stanley, Federated Hermes and Loomis Sayles Financial Network, Trinity Miller, Derek Hald, and Matthew Stehnach
Petersen Graphs: To Infinity and be Bound,
Nathan Caldwell

E108
Engineering Capstone
Dr. Derek Breid

Improving the Water Distribution, Solar Power, and Water Collection of the Living Chapel Irrigation System,
Victoria Sant, Mike Iuzzolino, and Tyler Dancu
Improving Stability and Consistency in Bullet Die Inspection, Eduardo Richa and Fulton Fontana
The Design and Fabrication of a Fiber-Reinforced Concrete
Klingeman, and Brayden Gibson

E104
Engineering Design
Dr. Adam Wood

Design and Build of a Hydrodynamic Water Tunnel,
Team 4: Benjamin Rafferty, Javier Torres, Aaron Grant, and Matthew Green
Team 5: Shayna Perigo, Ashley Smith, and Isabella Vinoski
Team 6: John Labuda, Sean Cain, Michael Gilpin, and Tyler Harpst

S201
History
Dr. Tim Kelly

"Imagine" a Peace Anthem, for People Past and Future,
John Quinn
Article 41 and de Valera: A Reassessment of de Éamon de Valera's Scarred Reputation Concerning Women's Rights,
Katherine Folmar
Freak Shows and Their Effect on Those with Disabilities and Deformities,
Shannon Dalton
The Relationship Between Tex-Mex and Authenticity,
Noah Lukowsky

Oral Session 1: 2:45pm – 4:00pm
E102
Psychological Science

The Influence of Context on the Processing Fluency of the Album Trout Mask Replica
Michael Azinger
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline(s): Psychological Science

Processing fluency has been defined as the ease with which perceptual information is processed. There are tribes of fluency which share two common properties: they influence the ease with which stimuli are processed and how negatively or positively they are evaluated. Previous literature suggests that the affective, liking aspect of processing fluency increases in unfamiliar musical stimuli with increased exposure. This is supported with the mere-exposure effect first theorized by Zajonc (1968) and Berlyne (1970) who first predicted an inverted-U relationship between exposure and affect. Keast (2009) and Shehan (1984) found evidence which suggests that having students engage with information about music can increase liking responses. This study investigated whether repeated listens and contextual information about the music could induce greater processing fluency of a complex album. Participants were randomly assigned to read an informational reading about the album Trout Mask Replica or a control reading. This was completed after listening to two songs from the album for the first time to see if there would be a change in enjoyment. They were also randomly assigned to either a low or high complexity condition of song selections from Trout Mask Replica.The hypothesis that enjoyment ratings would be greater for the informational reading group than the control was supported.

Social Media and Attention
Kaley Lazere
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline(s): Psychological Science

Social Media is a platform and system that has been integrated into society for many years now. As its advent was unprecedented, there was little time to understand the effects that it had on the world, society, and humans themselves. Social Media use can affect various aspects of memory capacity, one of those being prospective memory. Prospective memory refers to an individual's ability to remember something that needs to be done in the future, or a future rule. Multiple tasks that focus on different subjects demand attention, which can serve as a distraction. Which ultimately can then lead to lapses in remembering all presented information, as an individual may only be able to focus on certain aspects of the presented information. This specific research seeks to explore how various social media platforms play a role in memory and attention. Specifically, evaluating the effects of acute social media breaks on working memory and prospective memory during task completion.

Oral Session 1: 2:45pm – 4:00pm
E102
Psychological Science

Alcohol Use, Family History, and Nicotine Dependence as Predictors of Anxiety and Depression
Ariel Beard
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline(s): Psychological Science
Grants: *A.J. Palumbo Student Research Endowment*

I studied smokeless tobacco dependence, cigarette dependence, e-cigarette dependence, alcohol dependence, family history of substance abuse, alcohol abuse, depression, and anxiety as predictors of anxiety and depression. Family history of depression and substance abuse, age, gender, and alcohol dependence predicted depression. Age, family history of anxiety and depression, alcohol dependence, gender, and smokeless tobacco predicted anxiety. Nicotine-based predictors could not be adequately assessed because nicotine use was infrequent in my sample.

Oral Session 1: 2:45pm – 4:00pm
E103
Criminology, Law and Society

Is There a Contrast of LEO Leaderships Between Men and Women?
Madison Cassidy
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline(s): Criminology, Law and Society

This research explores the differences and similarities in leadership qualities between men and women in law enforcement. Successful leaders distinguish themselves by inspiring their teams and communities to achieve maximum effort and embrace visionary goals. Women in law enforcement are noted for superior communication skills with peers and the community, more effective interactions with victims of sex crimes, fewer complaints, greater approachability, and a significant potential for positive change in the field. Despite numerous challenges, women officers bring positivity and inspiration, setting a strong example for future female leaders. Overall, women demonstrate a broader range of leadership qualities compared to their male counterparts.

Violence Risk Assessment: Effectiveness in Reintegrating Offenders
Madison Arnold
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline(s): Criminology, Law and Society

This research explores the connection between recidivism rates and mental health treatment, emphasizing the accuracy and effectiveness of forensic violence risk assessment tools in the criminal justice system. It highlights the shift towards rehabilitation and the restoration of offenders' social relationships as a method of reintegrating law-abiding citizens into society. The study acknowledges the diversity of available assessment tools, each with unique strengths and weaknesses, and suggests no single test can determine readiness for reintegration. Instead, it proposes further research into combining these tools to enhance assessment accuracy. This could potentially improve reintegration strategies and reduce recidivism rates by ensuring offenders are appropriately prepared to return to society.

Ethical Implementation of MAOA Screening
Spencer Millay
Faculty Sponsor(s): *Dr. Kayla Jachimowski*
Discipline(s): Criminology, Law and Society

This capstone examines the interaction between the MAOA gene and early environmental stressors like trauma and parental psychopathology, using Agnew's General Strain Theory and the Diathesis-Stress Model to explore their roles in aggressive behavior. It discusses the relevance of genetic factors in legal contexts and proposes a proactive intervention that includes voluntary newborn genetic testing and annual pediatric mental health screenings. This policy aims to preemptively reduce crime rates by identifying and addressing risk factors early, offering an alternative to reactive crime-reduction measures. The proposal also considers the ethical implications of genetic testing and mental health evaluations, emphasizing the balance between scientific advancement and individual rights.

Oral Session 1: 2:45pm – 4:00pm
E104
Engineering Design

Design and Build of a Hydrodynamic Water Tunnel
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline(s): Engineering

Students in Engineering Design and Lab (ENGR 240) will present their semester-long project of designing and building a hydrodynamic water tunnel. The purpose of the tunnel is to allow users to visualize and study the hydrodynamic behavior of submerged objects in flowing water. Students will explain their approach to the design project and how they gradually improved their designs through iteration.

Team 1: Sang Gomez, Dominic Denardo, Ethan Moyers, and Nicholas Jackman

Team 2: Elizabeth Dudley, Hailey Rossman, Brianna Sciore, and Julie Evans

Team 3: Zachary Ridilla, Garrett Navitsky, Caden Horton, and Nikola Buffone

Oral Session 1: 2:45pm – 4:00pm
E106
Politics and Philosophy

Consciousness and Brain Death
Sophia Bringman
Faculty Sponsor(s): *Dr. Eric Mohr*
Discipline(s): Philosophy

Philosophy senior thesis. In this thesis I intend to advocate for a shift away from the Uniform Determination of Death Act's whole brain death standard towards a standard that marks irreversible loss of consciousness and the failure of integrative functioning of the body as adequate to determine death. I will construct this position from the perspective of a panpsychist theory of consciousness, which provides the basis for a definition of personhood which is compatible with medical and physical knowledge of the brain and body and allows for the acknowledgement of nonreductive and objective ethical rights and clear boundaries to personhood and death.

Senior Thesis - Philosophy: The Sexual Identity of the Human Person
William "Mac" Nowalk
Faculty Sponsor(s): *Dr. Carl Vater*
Discipline(s): Philosophy

This thesis essay examines the relationship between sexual identity and human nature. It will analyze the hylomorphic nature of humans as beings made of body & soul, with the power of the soul that enables us to generate another being of our likeness, a natural perfection that we share with all other material beings. The personal component of human beings will be examined, noting that to be a person requires the rational faculties of the intellect and the will that grant us self-awareness and self-governance, and that we can recognize this in other persons, noting our personhood exhibited in a bodily manner. The human body will be analyzed in its relation to being sexed, male or female, exists through the production of certain kinds of gamete cells. This particular function is actualized in the multiple dimensions of characteristics of either sex, while disorders of sexual development do not separate the existence of definitively male or female from human nature. Finally, the human person, as embodied, will be understood insofar as sexed existence permeates personal existence, that maleness and femaleness is fully realized in relation to the other sex, and that gender identity erroneously separates bodily and sexual reality from our personal identity. It will be ultimately concluded that sexual identity is in fact fundamental to our nature as human persons.

Beyond the Barricade: Tocqueville, Hugo, and Their Conceptions of Equality
Rebekah Bollman
Faculty Sponsor(s): *Dr. Jason Jividen*
Discipline(s): Politics and Political Science

Equality is seen as an essential element to the American democratic republic. When looking closer at this equality under the law, warnings can be raised against the dangers and manipulation of this protector of liberty. French political philosopher Alexis de Tocqueville examines the benefits of equality as a safeguard for liberty and as a danger when taken too far in his study of American political life in his book Democracy in America. While his ideas are compelling, one must question whether they are

indeed relevant or true. When compared to a French contemporary of his, Victor Hugo, one sees the importance of Tocqueville's thesis on equality manifested in the novel Les Miserables. The comparison of these two prolific writers displays the importance of having a robust understanding of equality, particularly when instituting it under the law.

Clearing the Debris of Natural Disaster Management Policy
Tanner Adomaitis
Faculty Sponsor(s): *Dr. Jason Jividen*
Discipline(s): Politics and Political Science

Natural disasters are faced across the United States regularly, from tornadoes to earthquakes to hurricanes. Despite their constant presence, policy around natural disaster management receives little attention from the government and the general public alike. With the increased concern on terrorism, natural disaster relief programs have been pushed to the side. When the Federal Emergency Management Agency (FEMA) was combined with the Department of Homeland Security (DHS), FEMA was gutted of experienced personnel and resources, drastically reducing its effectiveness in fulfilling its role of protecting communities during natural disasters. The impacts of FEMA's degradation could be seen during Hurricane Katrina as protective measures failed on a large scale. In this paper, I review shortcomings of current natural disaster management policy and seek to identify possible pathways forward by increasing state and local power in natural disaster management.

Substantive Due Process in a Post-Dobbs World: Reassessing Unenumerated Rights
Jacob Mock
Faculty Sponsor(s): *Dr. Jason Jividen*
Discipline(s): Politics and Political Science
Grants: *Center for Political and Economic Thought George Washington Fellowship*

With the overturning of Roe v. Wade by Dobbs v. Jackson Women's Health Organization, the Supreme Court's usage of substantive due process has been put in question. In Dobbs, Justice Clarence Thomas writes a concurring opinion that the Court "should reconsider all of this Court's substantive due process precedents." Through exploring the history of substantive due process, and tracking the evolution of its usage up to modern times, a better understanding of the build-up to Justice Thomas's opinion will show why there is a pushback against the court's substantive due process jurisprudence. Looking at the history of the topic will also show the prevailing arguments of those falling on either side of the debate over substantive due process, and show that the debates over substantive due process fall into the commonly drawn lines of those with a living constitution and originalist interpretation of the Constitution. Proposed solutions and alternatives to substantive due process that could address unenumerated rights are proposed such as the 9th Amendment and the privileges and immunities clause of the 14th Amendment. Although these alternatives could have some validity, they show how the debate over unenumerated rights will continue regardless of what vehicle the Supreme Court uses to address them and show the flaws in the court taking the role of protector of rights.

Oral Session 1: 2:45pm – 4:00pm
E108
Mathematics

App Development Insights: Optimizing User Rating Through Data Analysis
Joshua Havrilla
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

This report provides insight for app developers to understand what types of specifications help in producing high review ratings from users. Using regression models, data visualizations, significance testing, and other statistical methods, we can determine which of the variables from our data set best assist in predicting average user rating for the current version of the app. Therefore, not only will it help developers in creating a new app that will likely succeed with consumers, but it will also provide current app owners with knowledge about what factors they should change to improve the performance of their app. The data set used for this analysis includes more than 7000 Apple iOS mobile applications and was obtained through secondary data collection from Kaggle. The platform Kaggle collected the data by extracting it from the iTunes Search API on the Apple Inc. website.

Is Offence in Baseball Change in Anyway Over the Years?
Deven Haywood
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

With a focus on home runs as a crucial measure of offensive production, this study examines whether offensive performance in Major League Baseball has evolved over time.I investigate trends in home run frequency, league-wide averages, on base, etc. by examining historical data spanning several decades. According to the research, home run rates have significantly increased in some periods, most notably the "Steroid Era" of the late 1990s and early 2000s and the more recent "Launch Angle Revolution" that started in the middle of the 2010s. These changes imply that although baseball offence has changed over time, home runs have emerged as a key and expanding element of scoring strategy, changing the definition of offensive success in the contemporary game.

Positional Spending and Team Success in the NFL
Benjamin Yeskey
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

This project will analyze NFL teams' positional spending, broken down into positional allocation, across the 2013-20 seasons. The goal is to reveal a relationship between positional spending and team success, as measured by team wins and point differential. Uncovering such an association should advise on how (to or how not to) construct a winning NFL team. This project sourced year-by-year positional spending data from OverTheCap.com and team standings and metrics from data.scorenetwork.org.

Oral Session 1: 2:45pm – 4:00pm
E108
Mathematics

Predicting Sales at a Local Dress Store
Kirston Norton
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

The goal of this project is to develop a model to predict both upcoming prom and homecoming unit sales at MB Prom, a family-owned business in Greensburg, Pennsylvania. By leveraging historical sales data from both prom and homecoming seasons and identifying seasonal trends, this model aims to improve inventory management, marketing strategies, and overall sales planning for these key events. Specifically, the model will predict the number of prom and homecoming items to be sold in the upcoming seasons, helping the business with strategic planning for the future. The data for this analysis, collected from the store's BBL system, spans from January 1st, 2023, to December 31st, 2024, and includes detailed sales reports for both prom and homecoming purchases.

Modeling Quasar Peak Brightness Over a Narrow Redshift Range
Matthew Vanden Berk
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

Determining the brightness of objects in space is important for understanding their properties, distance, size, energy, and more. Measuring the brightness can be complicated by the redshift effect as well as variations in telescope design and calibration. This project aims to help overcome this difficulty by predicting the peak brightness of quasars using several other variables. To reduce the effects from redshift, the quasars were selected from a narrow redshift range.

How to Win More Hockey Games
Anthony Barle
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

The goal of this project is to find associations between a team's total number of wins in a season and other statistics. While statistics such as goals and games played will have an obvious correlation, this model will aim to find other influential variables that could be managed by a team. The data was collected from the NHL website, and it contains variables such as losses, ties, overtime losses, points, goals for, goals against, face off win percentage, and more. These variables will be used to predict the response variable of wins. While the model will not be able to be used for prediction purposes, it will work to provide insight into possibly overlooked variables. Taking the importance of these variables into account, organizations in the future may be able to build teams and create game plans which are more tactical and effective.

Oral Session 1: 2:45pm – 4:00pm
E108
Mathematics

The Accuracy of Different Valuation Methods on Stock Price Predictions
Mattia Speretta
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Mathematics

With this analysis, I am looking to take a deep dive into two valuation methods, discounted cash flow and market multiples, used by investors to find how much a company might be worth. I am looking to understand all the variables within these valuation methods and break down the effect each variable may have and discover the true accuracy of the two different models. Understanding this would give a strategic edge in the market to become profitable in the long run. The model I come up with will be transformable to use on as many companies as wanted and can essentially predict their profitability. I am looking to find the specific variables that have the strong correlation to a profitable company. This information is very useful and could be used by consulting companies who are working to better a company's business plan or for the company itself who are looking to understand what aspects of the business need to be focused on the most.

Predicting the Number of Wins for Each MLB Team
Ethan Dutka
Faculty Sponsor(s): *Dr. Sarah Dumnich*
Discipline(s): Other

Does spending more money always equal more success for MLB teams, or are there other factors involved too? My semester project will involve trying to see which variables influence the number of wins each MLB team will earn. The predictor variables I am using are changes in payroll, changes in total team WAR, and changes in run differential, which is where the Pythagorean win expectation comes from. Then with this, I will try to predict how many more/less wins each MLB team earns in 2025 compared to 2024. I compared several variables from MLB teams over the last four years to explore their relationship with each team's number of wins.

Oral Session 1: 2:45pm – 4:00pm
S201
English

A Duel of Blood
Gabriel Seevers
Faculty Sponsor(s): *Ms. Mallory Saylor*
Discipline(s): English
Grants: *A.J. Palumbo Student Research Endowment*

I would wish to present the short, dynamic fantasy story that I presented during the Sigma Tau Delta conference. The story is a fantasy tale detailing a fight between two brothers, who represent two very different ideologies, and the strength of bonds. I will forming a panel to share this original work alongside other members that attended the Sigma Tau Delta honors convention, which will be Marisa Hooper, and Sophia Nelson.

"Shell Searching"
Marisa Hooper
Faculty Sponsor(s): *Ms. Mallory Saylor and Dr. Jeannine Pitas*
Discipline(s): English
Grants: *A.J. Palumbo Student Research Endowment*

My project is a creative nonfiction piece titled Shell Searching. In this piece, I wrote about familial ties while layering those interpersonal connections with scientific information about seashells. I wrote this essay my junior year for Creative Nonfiction with Dr. Jeannine Pitas as part of my final portfolio. My main theme behind the piece is that life always changes; whether that be your family members changing, family members passing, or that you are changing yourself as you grow up. I edited my nonfiction piece to focus more on the Sigma Tau Delta convention's theme, "One of Ours," which conveys the importance of belonging, community, and membership in our culture.

The Unbearable Heaviness of Being Alone
Sophia Nelson
Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline(s): English
Grants: *A.J. Palumbo Student Research Endowment*

"The Unbearable Heaviness of Being Alone" is a literary analysis essay examining the physical and mental consequences of social isolation as seen in "The Yellow Wallpaper" by Charlotte Gilman, "A Hunger Artist" by Franz Kafka, and "The Death of Ivan Ilych" by Leo Tolstoy.

Oral Session 2: 4:15pm – 5:30pm
E102
Comm and Media Studies/ Engineering/Computer Science

Revisiting Conversational Rituals: Gender Dynamics in American Workplace Communication
Madeline Klun
Faculty Sponsor(s): *Dr. Jessica Harvey*
Discipline(s): Communication and Media Studies
Grants: *A.J. Palumbo Student Research Endowment*

This study builds on Deborah Tannen's (1994) "Talking from 9 to 5: Women and Men at Work", which identifies conversational rituals—such as apology, criticism, commiserating, and opposition—as key elements shaping workplace communication and gender dynamics. Through Zoom interviews with American professionals across various industries, this research investigates whether these rituals still occur with the same frequency and meaning in today's workplace. Findings reveal that while these rituals persist, their frequency and interpretation vary depending on work models, roles, and team structures. For instance, criticism and opposition were more common among team-based employees, while solitary workers reported fewer opportunities for such exchanges. Apologies and commiseration remained frequent, with participants—particularly women—highlighting their communicative functions but also expressing concerns over potential negative perceptions. The study confirms that gendered communication patterns endure and continue to influence perceptions of competence and authority. These insights contribute to broader discussions on workplace equity, collaboration, and inclusive communication practices.

"Breaking the Ice:" Political Disclosures and Privacy Management Theory"
Marisa Hooper
Faculty Sponsor(s): *Dr. Jessica Harvey*
Discipline(s): Communication and Media Studies
Grants: *A.J. Palumbo Student Research Endowment*

In a polarized society where politics are hesitantly discussed, it is important to uncover to whom people talk about their political beliefs and whether people disclose or conceal their political beliefs. Through the theoretical framework of communication privacy management theory (Petronio, 2002), this research, from semi-structured interviews, investigates and finds common themes among participants about with whom they discuss politics, or whether participants conceal or reveal their political affiliation. Analyses of the thirty interviews revealed that participants relied on privacy rules to weigh the pros and cons of revealing or concealing their personal information about their political beliefs. Additionally, if participants recognized more benefits in sharing, they would break their privacy boundary and disclose. Furthermore, when participants noticed more risks, there appeared to be a greater likelihood of concealment. This study furthers research on the current state of how interpersonal relationships are affected by political polarization.

Oral Session 2: 4:15pm – 5:30pm
E102
Comm and Media Studies/ Engineering/Computer Science

CIS Rooms
David Richman, Nathan Caldwell, Chris Hopstetter, Thomas McLaughlin, and Abigail Leskovansky
Faculty Sponsor(s): *Dr. Anthony Serapiglia*
Discipline(s): Computer Science
Grants: *A.J. Palumbo Student Research Endowment*

Our project aims to provide a room reservation system for the CIS Department rooms: W210, W212, and the CIS conference room. The need for a scheduling system has arisen from the joint use of these rooms by CIS students and, in the case of W210, SVC Esports. Both Seniors, in Senior Project, and Juniors, in Software Engineering, need to use these spaces and rooms, but there is no way to know when the rooms are available. Therefore, the CIS department needs a method to effectively handle schedule conflicts, assure students of reservations, and display schedules.

We will accomplish this task with digital displays to display current or upcoming reservations by each door (run by Raspberry Pis), and a web backend for submitting reservations and viewing the wider schedule. This system will be connected with the school authentication system for ease of access.

Decision Making Across the Curriculum
Lizzie Dudley and Jamison Ives
Faculty Sponsor(s): *Dr. Michael Robinson*
Discipline(s): Engineering

Every discipline involves decision-making, and each field has its own approach to this process; however, real-world decisions often transcend disciplinary boundaries. A key goal of liberal education is to help individuals recognize the various ways decisions can be approached and to apply different methods for evaluating which factors are most significant in a given situation. The Saint Vincent College Core Curriculum supports this objective by offering a diverse array of courses. This project explores decision-making as a common thread across core classes, with interviews from professors highlighting the different decision-making approaches represented in the curriculum.

Oral Session 2: 4:15pm – 5:30pm
E103
Data Science

Looking at Sentiment in Market and Financial Insights at T. Rowe Price, Federated Hermes and Commonwealth Financial Network
Noah Baker, Ethan Dunsey, and Mason Seftas
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline(s): Data Science

We explored the role of sentiment in markets and financial insights as published on various financial institutions' webpages. We scraped the public-facing market insight pages of Federated Hermes, a competitor of Federated Hermes – T Rowe Price, and a partner of Federated Hermes – Commonwealth Financial Network using the statistical programming language R. We then performed sentiment analysis on those articles to explore the changes over time, differences by author, topic, etc. We found some interesting results that included differences in sentiment between authors and sentiment slightly increasing as the word count of an article increased. We then constructed a visual user interface in Microsoft Power BI for users to interact with the dataset. Users can look at things like individual tags and authors to see the sentiment for each. They can view the changes in an easy-to-understand graph to assist market experts in making data-driven decisions.

Exploring the Role of Sentiment in Market Insights at BlackRock, Federated Hermes, and Merrill Lynch: A Data Science Capstone Project
Matthew Wilkinson, Jacob Polosky, and Alejandro Martinez
Faculty Sponsor(s): *Dr. Mary Regina Boland*

This project examines how sentiment is influential within a financial decision framework. We collaborated with Federated Hermes and analyzed its business insights alongside those of a competitor, BlackRock, and a partner, Merrill Lynch. Using web scraping methods, we collected and cleaned the articles and performed sentiment analysis to track the sentiment changes over time, assess differences by author demographics, and evaluate the role of emotional language. What we found can help financial firms understand how sentiment in their public and private communications may shape relationships with investors, competitive positioning, and market sentiment. We then visualized these insights in an interactive Power BI dashboard. In doing so, we provide a tool for financial analysts and strategists to monitor sentiment shifts, benchmark against competitors, and refine their messaging to align with market expectations.

Oral Session 2: 4:15pm – 5:30pm
E103
Data Science

Investigating Market Emotions Using Sentiment Analysis and Market and Financial Data from Morgan Stanley, Federated Hermes and Loomis Sayles Financial Network
Trinity Miller, Derek Hald, and Matthew Stehnach
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline(s): Data Science

For our project, we worked closely with Federated Hermes, a leading global asset manager based in Pittsburgh, PA. They presented an idea to us: they wanted to compare the overall sentiment of their articles, which are published on their insight's webpage, to those of their partners and competitors. We focused specifically on their partner, Morgan Stanley, and their competitor, Loomis Sayles. To achieve this, we used R programming to web scrape the three websites and performed sentiment analysis on the article texts. Lastly, to visualize the results, we used a combination of Power BI and Tableau to analyze the similarities and differences in sentiment between the three companies over time. The outcome of this project for Federated Hermes is the ability to assess how their articles may lean toward being overly optimistic or pessimistic in relation to their field. This will help them in future planning of their own public-facing web content.

Petersen Graphs: To Infinity and be Bound
Nathan Caldwell
Faculty Sponsor(s): *Dr. Whitney Liske*
Discipline(s): Mathematics

In this project we are trying to understand the number of 3-colorings of generalized Petersen Graphs. This is a classic problem in graph theory, which we study using techniques from Abstract Algebra. We can prove bounds on these coloring using the structures present in these graphs. We utilized Macaulay2 and Python to aid in the calculation of Grobner Bases of coloring ideals associated with the graphs to detect validity.

Oral Session 2: 4:15pm – 5:30pm
E104
Engineering Design

Design and Build of a Hydrodynamic Water Tunnel
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline(s): Engineering

Students in Engineering Design and Lab (ENGR 240) will present their semester-long project of designing and building a hydrodynamic water tunnel. The purpose of the tunnel is to allow users to visualize and study the hydrodynamic behavior of submerged objects in flowing water. Students will explain their approach to the design project and how they gradually improved their designs through iteration.

Team 4: Benjamin Rafferty, Javier Torres, Aaron Grant, Matthew Green

Team 5: Shayna Perigo, Ashley Smith, Isabella Vinoski

Team 6: John Labuda, Sean Cain, Michael Gilpin, Tyler Harpst

Oral Session 2: 4:15pm – 5:30pm
E106
Biology and Biochemistry

A Study Determining the Presence of Phytochemicals in the Western Pennsylvania Spearmint Plant Necessary for Zinc Oxide Quantum Dot Capping
Thomas Anand
Faculty Sponsor(s): *Dr. Steven Gravelle*
Discipline(s): Biochemistry

ZnO Quantum Dots (QDs) are an effective antimicrobial and antifungal nanoparticle. However, they can be expensive to produce depending on the method of synthesis. In recent years, there has been a shift in the literature towards green-synthesis of ZnO QDs as an alternative method: using phytochemicals extracted from plants. However, all current methods of green-synthesis use exotic plants from places far from Western Pennsylvania. In this experiment, ZnO QD's were synthesized and subsequently capped by a novel method: extracted phytochemicals from Spearmint and Chocolate Mint. Both plants are naturalized to Western Pennsylvania, giving researchers a natural, inexpensive, and local means of capping ZnO QDs for antimicrobial and antifungal research. Spearmint was found to be the most reproducible capping agent between Spearmint and Chocolate Mint, synthesizing various sizes of ZnO QDs.

Kozemchok, A. Induced Antibiotic Resistance in Clinical Pseudomonas Aeruginosa (2025)
Anna Kozemchok
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Pseudomonas aeruginosa is a Gram-negative bacterium that infects the airways of cystic fibrosis patients and those with endotracheal tubes (ETs) or tracheostomy tubes (TTs). These infections persist leading to chronic illnesses that are increasingly hard to treat with antibiotics. The purpose of this study was to induce the antibiotic resistance of clinical isolates of P. aeruginosa collected from ETs and TTs over generations. The hypothesis was that P. aeruginosa isolates would exhibit induced antibiotic resistance against meropenem and tobramycin. This was tested by finding the minimum inhibitory concentrations (MICs) of the isolates and inducing antibiotic resistance by exposing each isolate to a sub-MIC concentration of meropenem. Results showed significant differences in the MICs of all four isolates before and after sub-inhibitory antibiotic exposure. Isolates exhibited both cross-resistance to ceftazidime and hypersensitivity to tobramycin following sub-MIC exposure. This study provides relevance to both identifying and inducing antibiotic resistance of clinical P. aeruginosa.

Oral Session 2: 4:15pm – 5:30pm
E106
Biology and Biochemistry

The Effects of Cannabidiol on Bacterial Growth and Probiotic Interactions
Lydia Lieb
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Cannabidiol (CBD) has become increasingly popular in recent years and is marketed to increase health benefits, including with gastrointestinal disorders which are often the result of gut microbiome dysbiosis. The gut microbiome is an important part of health, playing a role in immunity but also fermenting complex carbohydrates and synthesizing amino acids and vitamins. This study tested the effectiveness of CBD in promoting bacterial growth in the gut microbiome, and the potential symbiotic relationship CBD may hold with probiotics. CBD was used alone and with a probiotic bacterium to test growth of gut bacteria using growth curves and biofilm tests. CBD worked to inhibit bacterial growth, alone and when in conjunction with the probiotic Lactobacillus rhamnoses. Compared with no CBD, bacteria grown with high, medium, and low concentrations of CBD exhibited decreased growth. This indicates that CBD creates a deficient and less diverse gut microbiome, which may have various impacts on health and overall well-being. With more research, specifically in vivo methods, it can be determined exactly how this inhibition affects the health of the individual.

Assessment of the Effects of Synthetic Azo Food Dye, Red 40, on Interleukin-23 in DSS Induced Adult Male Swiss Webster Mice
Evan Brozenich
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

In the United States, chronic diseases as a whole are on the rise. Specifically, Inflammatory Bowel Disease (IBD) cases are continuously increasing. IBD is characterized by chronic inflammation of the gastrointestinal tract and is categorized as Crohn's disease and ulcerative colitis. It is well acknowledged diet is a substantial factor in IBD pathogenesis and of important note is that synthetic azo food dyes, like Red 40, are highly prevalent in a common American's diet. Red 40 is so common in the United States that 94% of Americans over the age of two consume it on a regular basis. Research has shown that mice consuming Red 40 display elevated pro-inflammatory cytokines, like IL-23, in the gastrointestinal tract that play a pivotal role in IBD pathogenesis. Mice that consume dextran sodium sulfate (DSS) reliably develop inflammation of the colon, which is a model of a human-like IBD disease state. Therefore, it was hypothesized that mice consuming DSS would develop symptoms of IBD. It was further hypothesized that mice consuming DSS with Red 40 would develop more severe symptoms of IBD than DSS-only mice. To quantify the results of IBD, a disease activity index (DAI) score was used, colon lengths and weights were measured, and levels of IL-23 from colon tissue were quantified via ELISA.

Oral Session 2: 4:15pm – 5:30pm
E108
Engineering Capstone

Improving the Water Distribution, Solar Power, and Water Collection of the Living Chapel Irrigation System
Victoria Sant, Mike Iuzzolino, and Tyler Dancu
Faculty Sponsor(s): *Dr. Derek Breid*
Discipline(s): Engineering

The SVC Living Chapel is a student-designed space that aims to provide a place for quiet meditation on campus. It is designed to be environmentally sustainable based on Pope Francis' encouragement of sustainability in Laudato Si. The previous Living Chapel Capstone team developed an automatic irrigation system that presented hidden problems throughout last summer; including the water basins needing to be refilled frequently, the irrigation system not delivering enough water to the plants, and the solar panels failing mid-summer. Our project identified and aimed to fix issues with the durability of solar power, consistent waterflow to the plants, and increasing the water supply in the Living Chapel. Additionally, the main objective was to make the new system as low maintenance as possible, with the goal in mind that Fr. Fred will not need to come to the Living Chapel every day to water the plants like he did last summer. We accomplished this while maintaining the aesthetics of the space. Changes that were made to the Living Chapel were upgrading the solar panels to improve durability, installing a drip system to deliver more consistent water to the plants, and adding rain barrels to increase the water supply in the system.

Improving Stability and Consistency in Bullet Die Inspection
Eduardo Richa and Fulton Fontana
Faculty Sponsor(s): *Dr. Derek Breid and Dr. Michael Robinson*
Discipline(s): Engineering
Grants: *PITA Grant*

The goal of this project is to enhance the existing quality control processes at General Carbide Corporation by designing an inspection system that consistently detects any defects that are present in bullet dies produced by the company. General Carbide produces bullet dies (molds) that are used by ammunition manufacturers to cast actual bullet casings. An ongoing issue for General Carbide has been the distribution of faulty bullet dies due to a subjective and inconsistent inspection process. The design team used a twofold approach to complete their work: stabilizing the mounting and camera system currently in place at General Carbide and outlining a potential detection system using image analysis software. To improve camera stability, the team installed a clamp to ensure that the lens would not move or otherwise be disturbed during the image capture process. A measurement system was also installed onto the mounting system to standardize the depth and location at which images were captured. Using the image processing software ImageJ, the design team created a computer program to better detect the potential presence of a defect on the surface of the bullet die. The final deliverable for the project was a concise report delivered to General Carbide that made recommendations for industrial inspection processes that can be used to further improve the existing detection system.

Oral Session 2: 4:15pm – 5:30pm
E108
Engineering Capstone

The Design and Fabrication of a Fiber-Reinforced Concrete Bowling Ball
G.Joseph Jafarace, Mark Grenchik, Morgan Klingeman, and Brayden Gibson
Faculty Sponsor(s): *Dr. Derek Breid*
Discipline(s): Engineering
Grants: *A.J. Palumbo Student Research Endowment, Additional support provided by Westmoreland Mechanical Testing & Research and American Concrete Institute - Pittsburgh Chapter*

We sought to participate in a competition that looks at the potential of adding fiber reinforcement to a lightweight concrete mixture to show the versatility of concrete in many different applications. For this competition specifically they wanted to show the improved compressive strength of concrete when required to have a lightweight mix design, while being molded into an irregular shape, a sphere. We achieved this through much experimentation with the ratio of the water, cement, aggregates, and fibers, along with the types of aggregates and fibers used in the mix. The mix itself was designed using a Fiber Reinforced Concrete (FRC) mix which is unique because it required that mix was thought of solely on our own. This was all done to meet the density requirements, workability of the concrete so that it can be properly poured into a silicone rubber mold that we created and conform the shape, and compressive strength requirements for the competition. Our final product consisted of fly ash, cement, basalt fibers, expanded clay beads, and water through much research, density experiments, and compressive strength tests with cylinder samples and spherical samples sent to a third-party testing affiliate, Westmoreland Mechanical Testing and Research, for compression testing. The final density of our bowling balls was 1507 kilogram per cubic meter.

Oral Session 2: 4:15pm – 5:30pm
S201
History

"Imagine" a Peace Anthem, for People Past and Future
John Quinn
Faculty Sponsor(s): *Dr. Tim Kelly and Dr. Emily Arledge*
Discipline(s): History

John Lennon was one of the most influential rock musicians to ever live. This paper dives into the cultural relevance of the song "Imagine" and highlights its role as a peace anthem. It highlights the reaction Lennon's song garnered when it was released, how the public felt about it across the world, and the opposition it received in the 1970s. The paper then examines how the opinions of the song changed as the decades have gone by showing its cultural impact and how it is ingrained into societal memory. Showing that the song is still as relevant to the world today as it was in 1971. The evidence used included academic articles, articles that highlight the time it was released, interviews with Lennon and others, and books written about Lennon and his music. Lennon's view is also examined showing hoe he felt about the song and its ultimate purpose. The paper concludes with an examination of many contemporary events that involved the song showing its ultimate impact on culture and how it is still relevant to this day.

Article 41 and de Valera: A Reassessment of Éamon de Valera's Scarred Reputation Concerning Women's Rights
Katherine Folmar
Faculty Sponsor(s): *Dr. Tim Kelly and Dr. Emily Arledge*
Discipline(s): History

Both the historical community and modern media largely portray Irish statesman, Éamon de Valera as a misogynistic with little respect for women. Even more positive historians such as Ronan Fanning and Diarmuid Ferriter refuse to defend de Valera on the topic of women's rights. This paper seeks to challenge this publicly held memory of de Valera concerning women. The paper examines de Valera's both personal and professional relationships with women, drawing in part upon autobiographical material from de Valera's son, Terry, and wife, Sinéad. These relationships are then used to reassess the widely held public memory of de Valera's involvement in the writing of Article 41 of the Irish Constitution, which is considered a setback to women's rights. The paper concludes that public memory of this event is unfairly skewed and while de Valera certainly was not a feminist, it is incorrect to portray him as a misogynist with a specific hatred towards women.

Freak Shows and Their Effect on Those with Disabilities and Deformities
Shannon Dalton
Faculty Sponsor(s): *Dr. Tim Kelly*
Discipline(s): History

This work focuses on how the sideshows and human exhibitions in America from the mid-1800s to mid-1900s and how the institution affected people with physical disabilities and deformities. It will explore the connection between the disabled sideshow performers and why they may enter this line of business, the ways they were often presented, and the attitude of society at this time not only towards

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disabilities in general but also towards the freak shows themselves. This gives us a better understanding of the struggles that those with disabilities have had to go through to be seen as equals and how they took agency for themselves in the areas of history where society allowed them to. It also focuses on how the presentation of non-normative bodies have evolved from the sideshows and into today's world with representation of disabilities in popular media and professional museums, as well as the disability rights movement itself.

The Relationship Between Tex-Mex and Authenticity
Noah Lukowsky
Faculty Sponsor(s): *Dr. Gilbert Bogner*
Discipline(s): History
Grants: *The Elizabeth and Tom Andreoli Traveling Scholar Endowment*

This project aims to look into the supposed link between the idealized version of Tex-Mex that we may have about certain dishes, and tries to show a different view outside of what we commonly associate for certain dishes by looking across the Southwestern United States, the birthplace of Tex-Mex cuisine, and contrasting it with the cuisine commonly found in Western Pennsylvania, and comparing the changes between the two, alongside grappling with the idea of authenticity itself.

Poster Session 1: 2:45pm – 4:00pm

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1. How did the Gaelic Athletic Association Play a Crucial Role in the Irish Cultural Revival?
Cole Vay
Faculty Sponsor(s): *Ms. Alison Cox, Fr. Philip Kanfush O.S.B., and Mr. Shannon Jordan*
Discipline(s): Bearcat BEST

The Gaelic Athletic Association has played a crucial role in historical and modern Irish culture. The legend of Tain Bo Cualigne is known to have influenced the game of hurling, which is still commonly played today. The founding of the GAA was important to the cultural revival leading to how games are played in modern times. On my trip to Ireland, I was able visit the GAA stadium in Dublin. I was also able to participate in playing the Gaelic games.

2. From the Bookstore to Organizing Books: Improving my Vocational Skills while Bettering my Social Skills
Alexander Hampton
Faculty Sponsor(s): *Mr. Philip Pisone, Amy Hildebrand, and Chad Bender*
Discipline(s): Bearcat BEST

The focus of my poster is my entire work experience at Bearcat BEST. My internship experiences at Saint Vincent include the SVC Bookstore, the Community Relations and Outreach Office, and the Latimer Family Library Circulation Desk. My single externship was at the Hempfield-Greensburg Library. These jobs have helped me by showing how I would fair in different fields and what jobs suit me based on my experiences and interest. My hard work has already landed me a job with my externship work placement.

3. Finding My Style: Using my Creativity to Gain Work Experience in the Art and Cosmetology Fields
Amy Cruz-Gonzalez
Faculty Sponsor(s): *Mr. Philip Pisone, Amy Hildebrand, and Chad Bender*
Discipline(s): Bearcat BEST

My time at SVC has helped me gain important work skills to gain meaningful employment. I have had 5 different jobs on-campus and off-campus. I've worked 3 on-campus jobs, which include the Parkhurst Cafeteria, The SVC Bookstore, and The Shack. I also worked 2 off-campus externships at The Latrobe Art Center and SmartStyle Hair Salon. After graduation, I plan to work part-time, in hopes of being employed at a hair salon.

4. Making Dough: Becoming a Better Worker Through Food Prep Work Experience in a Pizza Shop
Joseph Deschepper
Faculty Sponsor(s): *Mr. Philip Pisone, Amy Hildebrand, and Chad Bender*
Discipline(s): Bearcat BEST

During my three years at Bearcat BEST, I have learned important job skills through my on-campus training and work experience. I completed three on-campus job placements at the Latimer Family Library, The Shack, and Leander Hall. Through this work experience, I have skills that have prepared me to work after graduation, specifically in the food industry.

Poster Session 1: 2:45pm – 4:00pm

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5. Riding to Success: Improving my Work Skills While Finding my Passion
Natalie Rebstock
Faculty Sponsor(s): *Mr. Philip Pisone, Amy Hildebrand, and Chad Bender*
Discipline(s): Bearcat BEST

My time at Bearcat B.E.S.T. has given me a plethora of job opportunities. I have worked at 3 on-campus internships, which include The Shack, Winnie Palmer Nature Reserve, and The Bookstore. I have worked 2 off-campus jobs, which include Lindwood Farms and Making Strides. The jobs that I have had have prepared me for my future jobs after graduation. These experiences have also helped me figure out that my passion is a job that I would be working with horses.

6. Gymnasium to Giant Eagle: How Cleaning and Organizing have Helped me Improve my Time Management
Zachary Grubich
Faculty Sponsor(s): *Mr. Philip Pisone, Amy Hildebrand and Chad Bender*
Discipline(s): Bearcat BEST

During my time at Saint Vincent College, I have had 5 vocational opportunities. I have worked 3 on-campus internships that include the FMO Gymnasium, Parkhurst Cafeteria, and the Latimer Family Library. I have also worked 2 off-campus externships that include Westmoreland Cleanways and Latrobe Giant Eagle. Throughout my time at Saint Vincent College, I have been fortunate to improve my skills of time management and communication with coworkers. These skills have helped me prepare for finding a part-time or full-time job.

7. The Anti-Diabetic Drug Metformin Increases the Prevalence of the Fungus, Candida Albicans in Gut Microbiome of Healthy Mice
Brian Lee
Faculty Sponsor(s): *Dr. Bruce Bethke*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Metformin is the most prescribed biguanide antidiabetic used to treat type 2 diabetes mellitus (T2D). Recent studies have shown that Metformin alters the composition of commensal gut microbiome microorganisms, potentially allowing other opportunistic fungi like C. albicans to increase in abundance. In this study male mice were treated with standard and high (elevated) dosages of metformin to determine the effect on the abundance of C. albicans in the gut microbiome. Blood glucose was monitored to confirm metformin's effect, and a novel object recognition (NOR) assay was performed to detect potential Metformin induces changes in behavior. Real-Time (RT) PCR analysis of fecal DNA indicated the relative abundance of C. albicans had increased in mice treated with either a standard (50ug/ml) or elevated dose (200 µg/mL) at the conclusion of the 10-week study.

Poster Session 1: 2:45pm – 4:00pm

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8. Comparative Efficacy of Probiotics and Antibiotics in Reducing CAUTI-Associated Biofilms
Kendall Castor
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Nosocomial infections, or Healthcare associated infections (HAI), are infections acquired in health-care settings that can be caused by multidrug-resistant organisms and can be associated with procedures such as catheterization, surgery, and ventilation. To treat HAIs, antimicrobial-coated catheters, probiotics, phage therapy, and antibiotic treatments have been proposed. This research aims to determine if probiotic (Lactobacillus rhamnosus), antibiotic (ciprofloxacin and ceftriaxone), or a combination treatment of both can reduce bacterial colonization, potentially offering an alternative to prevention of catheter-associated urinary tract infections (CAUTIs) caused by Escherichia coli and Proteus mirabilis. Minimum Inhibitory Concentrations (MIC) and biofilm formation experiments were performed. The most effective treatment was the utilization of probiotics against single bacterial biofilms and combination (E. coli and P. mirabilis) biofilms. This opens up a route of treatment options (probiotics) for biofilm infections.

9. Predicting the Lifespan of Dogs with Hyperadrenocorticism using Data Science Methods
Trinity Miller, Kate Lipscomb, and Nora Cabala
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline(s): Data Science

Hyperadrenocorticism is an endocrine disease that occurs when the adrenal glands overproduce cortisol (cortisone) in the animal's body. Very few studies have been conducted on it, especially in terms of survival beyond diagnosis. Our data consisted of electronic health records for 219 cases of this disease from a sample of dogs attending primary care practices in England. Our project aimed to replicate "Survival analysis of 219 dogs with hyperadrenocorticism attending primary care practice in England". To reproduce the study, we used survival analysis and a decision tree. We implemented our study in R version 4.2.2 and 4.3.3. Key findings that we found from the survival analysis show that we agree with the original study for the most part. The only place where we differ is the median days the dog lived after diagnosis, with the study finding 510 days and we found 424. Findings for the other method, the decision tree, showed age is highly important as older dogs are often found to not be alive within one year of their diagnosis. In the lower branches of the decision tree the Kennel Club Group becomes involved which helps the show the difference in life expectancy of large dogs and small dogs. The same impact is made when weight is included because larger dogs have shorter life expectancy so within one year it is likely they have died if they had a higher age at diagnosis.

Poster Session 1: 2:45pm – 4:00pm

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10. Heart Failure in Data Science
Noah Baker and Alejandro Martinez
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline(s): Data Science

Heart disease is the leading cause of death in the United States of America. This is why we decided to look into it. We decided to use a dataset to investigate factors that affect people with heart failure. The dataset used many different variables including age, diabetes, high blood pressure, smoking, the time, whether the person passed away, and so forth. We used many of them in our project. The two methods we decided to use in our study were survival analysis and clustering. We felt that these would be the best suited for our data. We used survival analysis to predict when the people in the study passed away. We found that after 8 months, there was about a 55 percent chance of survival. This is particularly interesting that the number is fairly low even though there were signs of heart failure in the patients in the group. The number was about the same for males compared to females. We also did some clustering to see if we could find anything interesting about the data. The clustering did not really help too much. All of the clusters were in a similar place on the graph. The groups were not very distinguished. In conclusion, we were able to learn a lot about the data from our analysis. If we did it again, we would try another method to see if we could get any different outcomes. The data was very easy to work with and analyze.

11. Chronic Kidney Disease Poster
Matthew Stehnach and Matthew Wilkinson
Faculty Sponsor(s): *Dr. Mary Regina Boland*
Discipline(s): Data Science

Chronic Kidney Disease (CKD) occurs when kidneys become damaged over time and cannot filter blood in the correct ways that they should. CKD is a significant issue that plays a part in 1.2 million deaths that occur annually worldwide. The main objective is to study the relationship between CKD diagnosis and survival along with its relationship to demographic features (age, sex). We utilized a data set that contained information on 500 different patients who were either diagnosed with CKD or had similar symptoms but were not diagnosed with CKD. We wanted to determine if there were any demographic variables within the data set that had a significant impact when it comes to developing CKD and if we could use variables such as the time of survival and whether or not a patient actually had CKD to predict survival probabilities for new patients based on data that we already had. The two methods that we chose to use for this study were survival analysis to predict different survival probabilities for new patients and sensitivity analysis to determine what demographic variables were significant when it comes to developing CKD. Our main results included that, on average, our new patients had a survival time of 87 months (7.25 years) from the initial diagnosis of CKD. We also found that CKD has a significantly higher probability of occurring in males that are over 60 years old.

Poster Session 1: 2:45pm – 4:00pm

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12. Small Tasks, Big Growth: Building Workplace Skills in a Campus Store
Emma Torretti
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

A single-subject research design was implemented at a campus-based store to support the vocational skill development of a 19-year-old female with intellectual disabilities and a speech and language impairment. The intervention focused on teaching workplace readiness and organizational skills through modeling, verbal prompts, and check-ins. Over several weeks, the participant demonstrated increased independence and confidence with stocking tasks. Findings suggest targeted support in natural job settings may promote independence in young adults with disabilities.

13. A Dash of Determination: Task Analytic Instruction in Vocational Training of Culinary Skills
Kiley Meek and Peter Billey
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

Over the course of seven weeks, a single subject design research study was conducted with a 20-year-old male with Autism who was employed in a vocational setting on campus. The primary objectives were to prepare ready-to-eat sandwiches and accurately measure various foods, skills that are typically developed in early adolescence. The findings highlighted the importance of vocational settings for students with disabilities, as well as the role of interventions and necessary prompts in helping the student achieve mastery in completing specific tasks, such as preparing sandwiches and measuring ingredients served on campus at The Shack. Progress was evaluated every fifth session, with an expected 5% improvement over three sessions deemed acceptable. Daily monitoring ensured skill maintenance, with an emphasis on generalization across different settings, including the student's home and workplace. The overall goal was to establish long-term independence in food preparation and measurement, reinforcing these skills through

14. Sealed & Delivered: Enhancing a Special Education Student's Skills in College Admissions and Postal Work Through Reinforcement
Jacqueline Brace, Max Radcliffe
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education, Bearcat Best/Special Education

This project employed a single-subject research design with data collection and visual analysis, to track the progress of a 20-year-old student with a learning disability who struggles with motor skills, as well as speech and language development. During the intervention phases, the participant demonstrated increasing rates compared to baseline phases. Findings suggested that this intervention was effective in enhancing a student with a learning disability's ability to work independently and complete postal work tasks adequately.

Poster Session 1: 2:45pm – 4:00pm

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15. Enhancing Reading Fluency in Special Education: A Targeted Intervention Approach
Justin Patenaude
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

For ED-360, Strategies & Assessment for Students with Significant & Multiple Disabilities, I designed a project centered around a 1st grade girl who struggled with reading fluency. I decided to create an intervention project to improve the skills needed to become a fluent reader. To design this experiment, I worked with her classroom teacher, the school's reading specialist, and Father Philip Kanfush. After establishing a solid baseline, each day I worked with the student on a grade level decodable text. I reviewed high frequency words. I also reviewed with her vowel teams, blends, and digraphs. At the end of the experiment I had her read three new texts to show her progress. Overall, the student showed much improvement for such a short period of time.

16. Squeaky Clean Success: A Task Analytic Approach to Teaching an Essential Life Skill
Kayleigh Thompson
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education, Disability Studies

A single-subject instructional plan was implemented with a Bearcat B.E.S.T. student with the goal of teaching the student the skill of wiping down tables and chairs in a cafeteria setting. This skill is important for the student's future plans of being employed in a restaurant setting as well as living independently. The plan was conducted in seven trials over the span of seven weeks in the Saint Vincent College cafeteria, with the goal of promoting the student's independence and her ability to generalize the skill in future work and home environments. Findings suggest that the repetitive practice of wiping down tables and chairs significantly contributed to the student's success toward mastering the skill at the end of the seven-week period. The results suggest that task analytic approaches like this, combined with consistent practice, repetition, and reinforcement, can be effective in teaching essential life skills to students with disabilities.

17. "Developing Independent Living and Vocational Skills: Teaching Proper Clothing Folding to Enhance Organization and Efficiency"
Riley Chase and Grace Steen
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

A single subject research design was implemented at the Saint Vincent College Bookstore to evaluate the impact of the direct instructional methods on an 18-year-old girl with intellectual disability. The critical goal identified for this student was to fold clothing. Folding clothing is a skill taught to typically developing children in their younger years. Properly folding clothing is essential for maintaining the cleanliness and organization of her bedroom/closet. Learning this skill benefited her not only at home but in the workplace as well. Knowing how to fold clothing properly allowed her to quickly and efficiently fold the merchandise in the bookstore. While increasing her vocational skills, she also improved her independent living skills which were addressed in her IEP along with vocational skills.

Poster Session 1: 2:45pm – 4:00pm

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18. Appropriate Communication in the Workplace for Individuals with Down Syndrome
Josie Seymour
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

I worked with an individual in the Bearcat BEST transition program at Saint Vincent College. She is a 20-year-old female with Down syndrome who is very interested in pursuing a career in the food service industry. To help her build the necessary skills to work independently in the future, she was placed in the cafeteria's salad bar preparation area. She worked in the cafeteria three days a week for 2.5 hours each day. I collected data over nine weeks to track her progress in improving communication with her coworkers, which will support her future endeavors in the food service field.

19. Chapter by Chapter: Supporting The Development of Skills in a Librarian Role for a Student With a Learning Disability
Daniel Geis and Evan Wiewiora
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

This project used a single-subject research design through which data was collected through the use of observation via the instructors, to evaluate the job progress of a 19-year-old student who has autism, intellectual disability, and receives services for speech and language impairment. During the intervention phase, after gathering baseline data, the student has shown increasing rates in all areas of the job requirements. Data suggested the intervention plan was efficient for supporting a student who has a learning disability, in their ability to independently complete all the parts of their librarian duties.

20. Promoting Independence: Task Analytic Instruction on Making a Bed
Nicolette Kloes
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B.*
Discipline(s): Education

Over the course of the Spring 2025 semester, a student in the Bearcat B.E.S.T. program gained real-life job experience at Saint Vincent College. The student is diagnosed with autism as well as having a speech and language impairment. The student works in Leander Hall and performs tasks that promote independent living skills under one job coach. This project used direct instruction and data collection to track progress throughout the semester. The overall goal was to have the student properly make a bed in order to gain the skills needed to live unassisted, if desired, as well as establish a practical, organized morning routine.

Poster Session 1: 2:45pm – 4:00pm

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21. Using Video Modeling to Teach a Measuring Task to Individuals with a Moderate Intellectual Disability
Domenic Hipps, Makenna Maier, Ryan Snyder, and Luke Levendosky
Faculty Sponsor(s): *Dr. Dawn Turkovich*
Discipline(s): Education

This study examines the effectiveness of video modeling as an intervention to teach individuals with moderate intellectual disabilities how to measure objects accurately. The intervention involved a baseline assessment in which students measured objects independently, allowing researchers to identify the student's initial ability to measure. Following the baseline, students began the measuring task, and upon making mistakes, the researchers paused the activity to show brief, targeted video segments that demonstrated the correct method for the specific step the student had missed. The video modeling approach aimed to provide clear, visual guidance and reinforcement, enabling students to self-correct and improve their measuring skills. The results of this study suggest that video modeling is an effective tool for teaching measurement tasks, as students demonstrated improvement in their accuracy and understanding of the measuring process after receiving the intervention. This study highlights the potential of video modeling in supporting special needs students in acquiring practical academic skills and provides a promising avenue for future research in educational interventions for students with diverse learning needs.

Faculty Sponsor(s): *Dr. Dennis McDaniel*
Discipline(s): English

The following poster presentation will consist of nine posters from nine students in my Renaissance in Florence class. Over spring break, we traveled to Florence, Italy, and students were tasked with creating a poster presentation relating to our course content and our trip. I have spoken to Terrance Smith, who has permitted me to submit a group project in this fashion.

22. "The Anatomical Accuracy of Renaissance Art"
Malley Kotula
Discipline(s): English

23. "The Architecture of Florence"
Jakob Krumenaker
Discipline(s): English

24. "Crowned in Laurel: An Italian Literary Legacy"
Madison Scola
Discipline(s): English

25. "The Rise of the Artist as a Celebrity"
Alexander Ryan
Discipline(s): English

26. "A Walking Tour of Florence"
Colt Easterling
Discipline(s): English

Poster Session 1: 2:45pm – 4:00pm

27. "Florentine Women and the Arts"
Kennedy Sheriff
Discipline(s): English

28. "Galileo's Contribution to Science"
Olivia Trotter
Discipline(s): English

29. "Brunelleschi's Work in Florence"
Kate Lipscomb
Discipline(s): English

30. "Michelangelo"
Charlotte Jordan
Discipline(s): English

31. The Horror, From Folktales to the Silver Screen
Rachel Hutchinson
Faculty Sponsor(s): *Mr. David Safin*
Discipline(s): Digital Arts and Media

The horror genre is essentially the modern equivalent of ghost stories told around the campfire. The progression of these stories from word of mouth, to books, theater, and films, can be easily tracked through the progression of something like Vampires. Originally a Book, Dracula was inspired by the tales of bloodsuckers Bram Stoker heard in his childhood. The story cemented several tropes of vampires that are still being used today, and the character of Dracula still makes appearances in everything from children's movies to atmospheric horror. It's also the easiest to track since Stoker kept notes on what inspired him, and there had been so many media adaptations through the decades, and these are the most readily available. Media is about and by people, and the way people interpret things is the blueprint for future media.

32. The Growing Issue of Shrinking Glaciers; the Impact Himalayan Glacier Melt has on Central and East Asian Communities
Aidan Fraser
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

Glaciers across the world have been shrinking at an alarming rate over the past half-century. This is particularly apparent in the glaciers of the Greater Himalayan region, which possess the largest area of ice outside of the polar caps. Ten major rivers in East and Central Asia find their origin in the High Mountain region and of those rivers, five rely on snow and glacial melt for a significant portion of their streamflow. The water from these glaciers provides a resource for communities all across Asia. For instance, 25% of China relies directly on glacial melt for water during the dry season. That said, by 2035, the Himalayan glaciers are estimated to have decreased in size by 80% relative to their size in 1990. This shrinkage will cause a short-term surge in flood-related events, and in the long-term result in severe droughts in the lowlands, as well as a cascade of dramatic ecological shifts at all levels of the

region. One such effect is the increase in the number and size of glacial lakes, and with that, the frequency of outburst flood events, presenting danger to the densely populated communities downstream. In this paper, we have examined the extent of the risks that glacial melt poses to neighboring countries and reviewed a variety of technologies that could be used to mitigate harmful outcomes.

33. Pittsburgh's Three Rivers: What is the Health of the Rivers and What Can We Do?
Ben Hudson
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

The Three Rivers of Pittsburgh, the Ohio, Monongahela, and Allegheny, have been crucial resources of the Greater Pittsburgh area since the beginning of its development. Because of this, they have polluted and altered because of the needs of the industries that boomed in Pittsburgh. After looking at different points at each of the rivers near downtown Pittsburgh, data was analyzed to compare the health of each river. The results showed that the biggest concern is the Monongahela River, whereas the Ohio and Allegheny show less concerning data. As mentioned above, Pittsburgh utilizes these rivers for many different needs, so it is important to consider taking action to improve the health of these rivers, especially the Monongahela River. Some combative measures could be limiting discharge, increasing abandoned mine drainage restoration efforts, or investing into an improved sewer system.

34. Assessing the Long Term Impacts of the Piney Point Wastewater Discharge on Tampa Bay
Maura Jodkin
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

In April 2021, over 200 million gallons of wastewater were discharged from an abandoned phosphorus mining site into Tampa Bay. Although this highly concentrated mixture of nitrogen and phosphorus is not believed to have directly caused the harmful algal bloom observed a few months later, the nutrient-rich water likely contributed to subsequent blooms that clogged fish gills and produced toxins that killed animals as large as manatees. While numerous studies have explored the immediate impacts of the discharge, the long-term effects remain poorly understood. This study utilizes plankton and water quality data from the Hillsborough County Environmental Protection Commission to assess the long-term impacts of the Piney Point wastewater discharge, examining the correlation between phosphorus, nitrogen, and harmful algal species levels over the subsequent three years. Analysis of multiple sites in lower Tampa Bay reveals a potential correlation between elevated nutrient concentrations and increased harmful algal bloom frequency. Notably, three years post-discharge, persistent elevated levels of harmful algae remain evident. Understanding the long-term consequences of the Piney Point discharge is crucial for safeguarding Tampa Bay's economic resources and offers valuable insights for managing similar events in other estuarine environments.

Poster Session 1: 2:45pm – 4:00pm

35. Examining the Link Between Avoidance and Attachment in Fear Responses
Dakota Yates, Grace Lamborne, and Ethan Hill
Faculty Sponsor(s): *Dr. Brandi Klein*
Discipline(s): Psychological Science

The purpose of this study is to look at the number of fears people have and to determine whether there is a difference in the number of fears among those who are either high or low in avoidance behaviors and have either secure or insecure attachments. Participants took a questionnaire that contained three tests: a) a list of one hundred common fears, in which they indicate whether they have a fear of each item, b) a method of measuring insecure or secure attachment, and c) a method of measuring high or low avoidance behaviors. We predicted that those who have insecure attachment and high avoidance behaviors would report a higher number of fears than those who have a secure attachment and low avoidance behaviors. Results can be found further in this presentation.

36. Faith and Death or Near-Death Events
Celena Colcombe
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline(s): Psychological Science
Grants: *A.J. Palumbo Student Research Endowment*

Many major world religions promote the actualization of positive well-being in their sacred texts and traditions. Those who practice religion or spirituality, which can also be referred to as faith, often create a framework for how they go about life. Faith can give meaning to one's life and offer a lens through which one interprets the world around them. Major life events, both positive and negative, can greatly impact an individual's faith. The faith of an individual can also be affected when they have a sense of closeness to another person afflicted by a major life event. In the current study, I aimed to see if the suddenness of a major, negative, life event increases or decreases faith depending on the event being a death or near-death of a close loved one. Participants reported on up to four events that have occurred to a close loved one within these categories: sudden death, non-sudden death, sudden near-death, and non-sudden near-death. Religiosity and spirituality or faith changes were measured using the Centrality of Religiosity Scale and the Attitudes Related to Spirituality Scale. Results will be reported.

37. Effects of Root Beer Consumption on Oral Health, Carrie Development, and Topical Anesthetic Efficiency in Alloxan Injected Swiss Webster Mice
Louisa Tiriobo and Payton Hrehovchak
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Diabetes mellitus (diabetes) is a hyperglycemic metabolic disorder which manifests as elevated blood glucose. Diabetes adversely affects oral health due to the reduced salivary flow rate stemming from hyperglycemia, causing nerve loss or damage through diabetic neuropathy. Overall, diabetes is a major disease affecting millions of people, and there is a continuous effort to find easier treatment methods for individuals with diabetes and diabetic neuropathy. This study investigated adolescent male Swiss Webster mice with diabetes induced with the drug, alloxan, and the effects of diabetes on nerve

function treated with a topical anesthetic. It also evaluated the effects that consumption of root beer had on sensitivity and oral health. Two procedures were employed to test for diabetic neuropathy: the Von Frey test and Cold Allodynia test. After euthanizing the mice, gums and teeth were assessed to determine impacts of soda consumption and diabetes on tooth decay and gum recession. Data collected from the nerve tests and the dissection measurements showed some trends, but too many confounding variables prevented detection of conclusive results. Overall, this study highlights the complexity of diabetes and its impact on oral health and sensitivity, suggesting that focus should be put on refining methods to isolate the effects of diabetes and diet on nerve function and oral health.

38. Genetic Engineering of a Commercial Brewing Strain of Saccharomyces Cerevisiae for the Secretion of Human Alpha-Defensin-6

Jedidiah Lingenfelter
Faculty Sponsor(s): *Dr. Bruce Bethke*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

The brewed product, beer, is a popular beverage worldwide, and its controlled consumption has been linked to improved gastrointestinal health. Novel brewed products associated with human health benefits are becoming an important sector within the US food and health industries. Human alpha-defensin-6 peptide is a component of the innate immune system that protects the digestive tract from invasion by pathogenic bacteria. This project sought to engineer a brewing strain of yeast to secrete the alpha-defensin-6 peptide, with the aim of producing a beer product that has added health benefits for the consumer. To accomplish this a synthesized DNA fragment consisting of the human alpha-defensin-6 gene fused to a yeast secretory signal sequence, was inserted into a yeast extrachromosomal plasmid under control of the alcohol dehydrogenase 2 promoter, which activates expression when glucose levels are low. The resulting expression plasmid was then transformed into a brewing strain of Saccharomyces cerevisiae, and the modified strain subsequently used to brew a pale ale. Sodium dodecyl sulfate-poly acrylamide gel electrophoresis (SDS-PAGE) was then utilized to determine the presence of secreted alpha-defensin-6 peptide.

39. In-Vitro Evaluation of the Wound Healing Efficacy of the Peptide BPC-157 Augmented with the Polyphenol Curcumin

Samuel Snyder
Faculty Sponsor(s): *Dr. Bruce Bethke*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Chronic wounds, and wounds in general present a significant issue for society at large. They bring an economic, emotional, and health burden that affects a large portion of the population, directly or indirectly. A wide variety of wound treatments exist; however, new treatments are constantly being researched to better target specific healing stages. Of late, natural remedies have been a focus with treatments such as peptides and herbal supplements being especially relevant. Specifically, the peptide BPC-157 has been the subject of several studies and has been demonstrated to aid in wound healing through increasing cell proliferation and migration as well as collagen production. Likewise, the polyphenolic compound curcumin has been shown to promote healing by reducing inflammation and increasing both proliferation and migration. The possibility of a synergistic effect between these treatments was tested in this study via in-vitro wound healing and collagen production assays using

mouse C2C12 myoblasts. Four trials were performed but the variability of the data was too high to determine any significant effect of the treatments on the proliferation and migration as seen through wound void closure rates. Further, little to no differences in collagen production were detected between treatment groups.

40. Salinity on Vibrio Fischeri Bioluminescence
Joshua Hartner
Faculty Sponsor(s): *Dr. Jennifer Koehl*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Vibrio fischeri is an aquatic bacterium and an essential symbiont of the squid species Euprymna scolopes. In high cell numbers, V. fischeri has the ability to bioluminescence. This experiment examines the effect of salinity on Vibrio fischeri bioluminescence. Previous studies demonstrated that medium salt concentrations like 3-4% sodium chloride (NaCl) produce the highest amount of bioluminescence, but growth is not dependent on salt concentration (Marsden et al., 2017; Soto et al., 2009). In the current study, high, medium, and low concentrations of NaCl or potassium chloride (KCl) salt were used, and the amount of growth and light produced was measured. Results showed that neither NaCl nor KCl at all concentrations tested did not have a significant effect on growth nor bioluminescence. This indicates that either the salt concentrations were not high enough to see differences or that salt has no effect on growth and bioluminescence exhibited by V. fischeri.

41. Effects of Streamflow on Temperature, Dissolved Oxygen, and Electrical Conductivity Along the Allegheny and Delaware River
Stephen Laun
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

Streamflow significantly impacts wildlife, aquatic habitats, water temperature, dissolved oxygen, and concentrations of pollutants and nutrients. It is important to analyze the relationships with streamflow, especially locally, to help understand streams further and possibly help mitigate any harmful impacts. USGS streamflow, temperature, dissolved oxygen, and electrical conductivity data from sites along the Delaware and Allegheny Rivers were collected and analyzed to accomplish this. The data collected consisted of data from 2018 to 2025. Streamflow and conductivity had an inverse relationship; streamflow had a negligible effect on water temperature, and streamflow had a positive relationship with the smaller variation in dissolved oxygen. Increased streamflow caused conductivity to lower as precipitation events, indicated by periods of high streamflow, dilute ions in the water. Air temperature had a much larger impact on water temperature than streamflow and, therefore, a larger impact on the broader level with dissolved oxygen. It is important to analyze streamflow and subsequent water parameters in streams to assess how they impact one another. This data is principal for future monitoring and possible habitat improvement. Also, the data supported that increased global temperatures greatly impact water temperatures and, therefore, dissolved oxygen levels.

Poster Session 1: 2:45pm – 4:00pm

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42. Life & Ministry of Saint Brigid of Ireland
Hope Farley
Faculty Sponsor(s): *Dr. Shannon Jordan, Fr. Philip Kanfush O.S.B.*
Discipline(s): Marketing, Theology

This study explores the life and ministries of Saint Brigid of Ireland, a nationally revered Christian figure deeply rooted in both religious tradition and Irish folklore. It begins with an examination of Brigid's origins and spiritual journey, tracing her path to sainthood as recognized by the Church and embraced by Irish cultural narratives. The research examines her complex identity as goddess, patroness, and saint, highlighting the miracles attributed to her and their lasting impact on the Irish people. A central focus is placed on Brigid's Cross, a prevailing symbol within her ministry that bridges pre-Christian (pagan) and Christian beliefs, reflecting the cultural and spiritual blend present in early Ireland. In addition, the study investigates modern practices and celebrations that continue to honor Brigid today, illustrating her enduring legacy in both religious and secular Irish life.

43. Exploring the Influence of Irish Folklore in Contemporary Branding and Marketing
Sydney Andrews
Faculty Sponsor(s): *Dr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Marketing

This study examines the impact of Irish folklore on contemporary branding and marketing practices in Ireland. By analyzing the integration of traditional myths, symbols, and figures into modern brand identities, the research explores how companies use folklore to enhance consumer engagement and celebrate Ireland's rich cultural heritage. Through field research conducted in Ireland, the project demonstrates how brands strategically incorporate elements of Irish folklore to foster emotional connections, reinforce national pride, and honor the enduring legacy of Irish tradition. The findings suggest that folklore is not only a cornerstone of Irish identity but also a powerful tool for brand storytelling, influencing consumer perceptions and cultivating brand loyalty in the Irish market.

44. Image Analysis for Tensile Testing
Antonio Scalamogna
Faculty Sponsor(s): *Dr. Adam Wood*
Discipline(s): Engineering

Tensile Testing for certain materials involve breaking in a notch into the side and then using a high amount of force to cause a shear break in the material. This is normally quickly analyzed by the worker who is breaking the materials and quickly give a fast estimate. To ensure an accurate and still fast estimate, this project is about designing and coding a computer to take pictures and give out an accurate reading.

Poster Session 2: 4:15pm – 5:30pm

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1. The Effects of Time Induced Stress and Working Memory Capacity on Reading Comprehension
Olivia Carr
Faculty Sponsor(s): *Dr. Mark Rivardo*
Discipline(s): Psychological Science
Grants: *A.J. Palumbo Student Research Endowment*

In this study I investigated the relationship between working memory capacity (WMC) and reading comprehension as well as how stress affects reading comprehension. The attentional control theory proposes that stress and anxiety negatively affect complex cognitive processes, such as reading comprehension. One hundred forty-seven participants completed a reading span measure to test working memory capacity followed by a reading comprehension test which contained 12 one paragraph passages, six of which were time-restricted. Participants then completed the state anxiety portion of the State-Trait Anxiety Index for adults (STAI-AD) to assess their stress levels. The data were analyzed using a 2 x 5 x 2 ANCOVA for mixed groups. The results showed that as WMC increased, reading comprehension scores also increased creating a significant difference in reading comprehension between participants with a WMC of 3 (M =13.10, SE = 0.40) and 7 (M = 15.57, SE = 0.64; p = .01) and participants with a WMC of 4 (M =13.31, SE = 0.38) and 7 (p = .03). However, no other significant differences were found.

2. Empathy Toward the Mentally Ill as a Function of Participant Gender and Patient Gender
Jeremy Bender, Alexandros Fekos, and Anthony Richards
Faculty Sponsor(s): *Dr. Brandi Klein*
Discipline(s): Psychological Science

This study questions whether there is a difference in the level of empathy for mentally ill males and females, depending on whether the participant is male or female. Participants were assigned to read a narrative about either a male or a female patient with bipolar one disorder. The participants then completed a measure of empathy toward the mentally ill person. We predicted that female participants would display greater levels of empathy than male participants toward both males and females with mental illness. Results are presented and discussed in the presentation.

3. The Relationship Between Screen Time, Social Anxiety, and Procrastination
Rachel Hernandez, Caterina Arcara, and Emma Martz
Faculty Sponsor(s): *Dr. Brandi Klein*
Discipline(s): Psychological Science

The purpose of this study was to assess whether there is a difference in procrastination between participants with high or low screen time, depending on whether they had high or low social anxiety. Participants took an online survey where they reported their average daily screen time; also, they completed scales to assess their levels of social anxiety and procrastination. We predicted that participants with higher rates of screen time and social anxiety would have higher levels of procrastination than those with lower rates of screen time and social anxiety. The results and conclusions are included in this presentation.

Poster Session 2: 4:15pm – 5:30pm

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4. Gaelic Athletic Association (GAA)
Joel Brooks
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B. and Mr. Shannon Jordan*
Discipline(s): Irish Studies

The Gaelic Athletic Association (GAA) is a cornerstone of Irish culture, combining athleticism with deep-rooted folklore and legend. This paper explores the influence of mythological stories, local legends, and folklore on the creation and evolution of GAA games, with a particular focus on how these elements shaped their rituals, rules, and significance. The GAA has not only served as a means of physical expression but has also acted as a vessel for preserving Irish traditions, connecting generations through a shared cultural identity. This paper will examine how the GAA has become a vehicle for cultural preservation, maintaining the connection between Ireland's ancient myths and modern-day athleticism. By analyzing the historical context of the association, its games, and the cultural narratives surrounding them, we will uncover how the GAA continues to influence contemporary Ireland and its national consciousness. Through this exploration, the paper will argue that the GAA remains a vital institution in safeguarding Irish culture, offering insight into its ongoing impact on Irish society today.

5. Irish Identity: The Liminality of Mythological Warriors and Irish Revolutionaries
Alexandria Votovich
Faculty Sponsor(s): *Mr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Irish Studies

Irish national identity is built on Celtic myths and legends. Throughout its history, Ireland has retained its mythical stories and characters and is able to connect them to its historically factual events and figures. One such connection is the 1916 Easter Rising and the legendary Celtic warrior Cu Chulainn. These subjects reflect a cultural continuity that merges past and present, mythological and historical, Irish identity. The liminality between these two is best represented in the commemoratory statue of Cu Chulainn located in the Dublin General Public Office, the building that was a vital outpost during the revolutionary Easter Rising. This statue and its connection to the revolutionaries who died during the rising is a symbol of Irish nationalism and a testament to the pride and fighting spirit of those seeking independence.

6. Hurling Through the Ages; the Gaelic Athletics Association and Folk Sport's Role in Preserving Irish Heritage and Culture
Aidan Fraser
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B. and Mr. Shannon Jordan*
Discipline(s): Irish Studies, Children's Literature

Ireland has a relationship with sport that is very unique in comparison to that of other countries. Popular in Ireland are several folk sports, such as hurling, Gaelic football, and even an Irish form of wrestling known as coraíocht, among others. These folk forms are just as prominent in Irish culture as the practice of more international sports like rugby or soccer. Much of the reason for this popularity is the involvement of the Gaelic Athletic Association, which is the largest amateur sport association in the world. The GAA, originally founded as a way to promote Irish culture and preserve its heritage despite English overrule, has always gone hand in hand with nationalistic ideals. As a result, it has had a galvanizing effect across the island, promoting fierce patriotism in the Republic, and inciting controversy in the North. Because of the Association's strong nationalist tilt, during times such as the Troubles,

GAA fields became hotbeds of political violence, and many lost their lives at the hands of paramilitary agents in loyalist displays. In this report, we examine the role the Association plays in politics and how it has changed and continues to evolve over the years.

7. Douglas Hyde and His Work to Preserve Irish Folklore in Education
Rebecca Slate
Faculty Sponsor(s): *Dr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Irish Studies, Folklore

Douglas Hyde recognized the dying Irish tradition and created the Gaelic League to try and preserve the culture. This included introducing folklore to education and offering bonus marks on exams for taking them in Irish. These practices still exist today. Folklore plays a large role in education and sets Irish education apart from American education in the way they hold close their culture.

8. Gaelic Handball
Rebecca Kurylo
Faculty Sponsor(s): *Dr. Shannon Jordan, Fr. Philip Kanfush O.S.B.*
Discipline(s): Irish Studies, (Folklore in Irish Childhood CORE)

Ireland's rich history and culture are highlighted through many different avenues, including sports unique to the country like Gaelic handball. Handball is played in an enclosed court, typically with a small rubber ball. The game's objective is to win a rally by hitting the ball against the wall with your hand. The other player must hit the ball back against the wall before a second bounce on the ground. The game is still affiliated with the Gaelic Athletic Association and is enjoyed by many today outside and within the country of Ireland. This project demonstrates experiential learning by providing first-hand experience in playing the Gaelic game of handball.

9. Literature's Impact on Irish Folklore
Pearl Russell
Faculty Sponsor(s): *Mr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Irish Studies, Study Abroad

Irish Folklore has experienced a booming growth and recognition from many authors like William Butler Yeats, Lady Gregory, James Joyce and many more. William Butler Yeats has made one of the greatest impacts on folklore in Ireland, especially for children. W. B. Yeats' grave, home church and exhibit at the National Library of Ireland all housed the information that proved his impact on Ireland's folklore, literature, and culture. I collected information and pictures of various artifacts pertaining to W. B. Yeats life, writing history, and the impact he has had on Ireland's folklore by contributing to the creation of the Celtic Revival. Ultimately W. B. Yeats has contributed greatly to Ireland in various ways, but it was his works with Irish Folklore that truly shaped their people and especially the children of Ireland.

Poster Session 2: 4:15pm – 5:30pm

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10. The Irish Sport of Hurling
Chloe Fontanazza
Faculty Sponsor(s): *Mr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Irish Culture Study

Ireland has a rich history and culture, and a part of that culture is the sport of Hurling. This poster explores the importance of hurling to the Irish culture, it dives into its history and includes some interesting facts about it. There is also an image included showing how my class got to learn about this sport firsthand.

11. Aran Island Sweaters
Sydney Campbell
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B. and Mr. Shannon Jordan*
Discipline(s): Irish Studies

The Aran sweaters, a hallmark of Irish craftsmanship, originate from the Aran Islands off the west coast of Ireland. These handmade garments, initially designed for fishermen and farmers, embody rich cultural heritage through their intricate knitting patterns, which symbolize familial ties, clans, and religious beliefs. This research aims to provide an in-depth exploration of the historical and geographical context of the Aran Islands, the wool used in these sweaters, the symbolism embedded in their unique stitches, and the evolution of their cultural and economic significance in contemporary times. The paper will discuss observations from field research conducted on the Aran Islands and examine the current use of Irish wool amidst declining demand. Additionally, the study will highlight the resurgence of interest in Aran sweaters within modern fashion, as seen in cinematic portrayals, celebrity endorsements, and the innovation of traditional knitwear by contemporary designers.

12. The Meaning of Celtic Knots Throughout Time
Leah Duncan
Faculty Sponsor(s): *Mr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Irish Studies

This presentation will discuss how what Celtic knots are and how they have been used in different contexts throughout different periods of Irish history. The primary focus will be discussing the pagan origins of Celtic knots and how they were later adapted to be a Christian symbol. Additionally, the presentation will demonstrate examples of architecture in which Celtic knots are incorporated and discuss the meaning and symbolism of different variations of knots. The presentation will include images and information collected over the course of the Folklore in Irish Childhood spring break trip to Ireland.

Poster Session 2: 4:15pm – 5:30pm

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13. Characterizing Adhesive Properties of An Extracellular Protein in Azospirillum Brasilense
Katelyn Stokan, Hannah Hughes, and Gladys Alexandre
Faculty Sponsor(s): *Dr. Jennifer Koehl, Hannah Hughes, and Gladys Alexandre from The University of Tennessee at Knoxville*
Discipline(s): Biochemistry, Biology

Azospirillum brasilense is a plant-growth promoting bacteria which adheres to the plant roots, fixes nitrogen, and performs chemotaxis. It has two chemotaxis pathways: Che1 and Che4. Novel structures were discovered on the extracellular surface of A. brasilense via cryo-tomography (Dobro et. al, 2017). These 75 x 3 (nm) hooks were abundant in wild-type cells and ∆che1 (>90%), somewhat present in ∆che4 (~50%), and lacking in ∆che1,4. Therefore, we hypothesize that the regulation and/or function of these hooks is linked to chemotaxis. In the ∆cheA1,A4 mutant (a related mutant to ∆che1,4) it was found that the mutant was depleted 100-fold of a predicted outer membrane protein; we hypothesize that this protein is related to the novel structures seen in Dobro et. al (2017). We used a knockout mutant of this gene that we are calling ∆28875, and characterized its adhesive properties via biofilm, root colonization, and flocculation assays. Biofilm production was significantly lower in ∆28875 compared to the wildtype, and microscopic images suggest that flocculation occurs faster in the mutant than in the wildtype. Together, these findings suggest that the 28875 protein is contributing to A. brasilense adhesion. Future work will further define the protein's function and will determine the extent to which it is mediated by chemotaxis.

14. Quantifying Biomarkers in Urine using SERS and HPLC for Simulated Bladder Cancer Diagnosis
Vincent Kaschauer
Faculty Sponsor(s): *Dr. I. Mitch Taylor*
Discipline(s): Biochemistry

Bladder cancer is a significant health concern with rising incidence and mortality rates. Current traditional diagnostic techniques, including urine cytology and cystoscopy, suffer from limitations such as low sensitivity, invasiveness, and associated patient discomfort, leading to potential delays in diagnosis and treatment. Recent studies have identified the potential of hyaluronic acid (HA) and folic acid (FA) as promising urinary biomarkers for bladder cancer due to their elevated levels in cancerous samples and involvement in the tumor microenvironment. A cancerous sample was simulated by using concentrations of HA above 0.5 ppm and FA above 50 ppm in the urine samples. This research investigated the feasibility of using Surface-Enhanced Raman Spectroscopy (SERS) and High-Performance Liquid Chromatography (HPLC) to detect and quantify HA and FA levels in simulated urine samples. Initial attempts using Raman spectroscopy and SERS faced challenges with signal intensity and expected enhancement, leading to a focus on HPLC analysis. HPLC successfully quantified both standards of HA and FA with linearity and identified their presence in spiked urine samples, although matrix effects were observed.

Poster Session 2: 4:15pm – 5:30pm

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15. Quantifying Dopamine in Mouse Brain Tissue Using HPLC to Evaluate the Effects of Nicotine and Alcohol Exposure
Stefanie Livelsberger
Faculty Sponsor(s): *Dr. I. Mitch Taylor*
Discipline(s): Biochemistry

Addiction is a chronic neurobiological condition that alters the brain's reward, motivation, and decision-making systems. Among the most commonly used addictive substances are nicotine and alcohol, both of which are known to cause long-term neurochemical changes in dopamine signaling pathways. Dopamine plays a critical role in reinforcement and reward processing, and its dysregulation is central to the development and persistence of addiction. While the effects of nicotine and alcohol on dopamine levels have been studied independently, limited research has examined their combined impact in specific brain regions. Quantifying dopamine concentrations in these regions is essential for understanding the neurobiological mechanisms of poly-substance use. To address this, a mouse model was used to simulate co-use through controlled intraperitoneal nicotine injections and voluntary oral alcohol intake. Brain regions involved in dopaminergic signaling were isolated and analyzed for dopamine content using high-performance liquid chromatography (HPLC). The method demonstrated strong linearity across dopamine standards ranging from 0.5 to 100 ppm. However, dopamine detection in brain tissue was inconsistent following homogenization, likely due to low dopamine concentrations, matrix related interference, and potential analyte loss during sample preparation.

16. Effects of Reaction Time Post-Concussion
Annika Barnes and Lindsey Benjamin
Faculty Sponsor(s): *Dr. James Kellam*
Discipline(s): Biology

Concussions are a traumatic brain injury that can cause a person to incur physical, cognitive, behavioral, and emotional side effects (Tiernan, 2019). One of those effects can be a change in a person's reaction time, or the time it takes them to respond to stimuli (Eckner et al. 2013). Research has also shown that multiple concussions can cause a greater level of these effects and make them more long-lasting (Iverson, 2012). A way to test a person's reaction time is the ruler drop test. This is when a researcher will drop a ruler for the subject to catch. Whether or not the person is successful, in addition to how long it takes the subject to catch the ruler, will give the researcher insight on how the person's reaction time is affected (Koppelaar et al. 2013). This could be translated into the use of tennis balls where a tennis ball is tossed to a subject. Then whether it is caught, and how long it took to catch, can give insight into how reaction time is affected. This can allow for further understanding of the possible long-term implications of experiencing concussions in one's lifetime. The results of this research conclude that having had concussions in the past does not necessarily influence one's reaction time in the long run. However, combining aerobic and cognitive exercise during recovery can potentially improve reaction time more efficiently than emphasis on one.

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17. Attention and Anxiety Cost of Sleep Aids and Stimulants: Behavioral Insights from Caffeine and Melatonin Use in Mice
Ethan McClain
Faculty Sponsor(s): *Dr. Bruce Bethke*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

In modern society, the use of stimulants and sedatives has become increasingly common, with caffeine consumed to promote alertness throughout the day and melatonin used to aid sleep. However, the cognitive and emotional consequences of alternating between these opposing compounds remain unclear. This study investigated the effects of treatment with caffeine, melatonin, and their combination, on attentiveness and anxiety-related behavior in mice over a ten-week period. To assess attentiveness, the mice were tested in a Y-maze assay measuring spontaneous alternation behavior. Results show that combined treatment with caffeine and melatonin decreased spontaneous alternation performance, suggesting impaired attentiveness, while treatment with these agents individually did not significantly impact spontaneous alternation. Anxiety-like behavior was evaluated using a novel object recognition test, with investigation time used as an indicator of exploratory drive and anxiety. It was hypothesized that caffeine would enhance attentiveness and reduce anxiety, while melatonin would have the opposite effect, and their combination would produce intermediate outcomes. Consistent with increased anxiety-like behavior, melatonin-treated mice showed significantly reduced investigation time compared to control mice and emotional regulation. Findings show possible attention and emotional influence.

18. The Effects of Enrichment on Spatial Memory in Mice
Lauren Bash
Faculty Sponsor(s): *Dr. James Kellam*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

The prefrontal cortex is responsible for multiple cognitive functions, such as attention and spatial memory. Enrichment stimulates the brain resulting in an increase in neuronal activity in the dorsolateral prefrontal cortex (DLPFC), improving spatial memory. The hypothesis was that mice exposed to enrichment in their cage will help in their spatial memory to find their way through a maze. For the experiment, two types of enrichment were used for the mice by feeding some cinnamon and giving others enrichment toys that promote physical exercise and chewing (exercise wheel and Kong chew toy, respectively). Each mouse was placed at the beginning of a normal maze and was timed until they found the reward (peanut butter). Results from multiple ANOVA tests showed that while cinnamon diet was similar to control diet, the exercise group had improved the change in maze run time between first and final trials. Daily enrichment could improve spatial memory over time in individuals predisposed to memory disorders, such as dementia and Alzheimer's Disease.

Poster Session 2: 4:15pm – 5:30pm

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19. Machine Learning in Cervical Cancer Oncology Screening and Diagnostics
Julianne Fetter
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Biology, Computer Science

Cervical cancer is a leading cause of cancer-related deaths among women worldwide, with early detection being crucial for effective treatment. However, access to cytology-based diagnostic methods can be limited in underserved regions. This study explores the potential of machine learning, specifically convolutional neural networks (CNNs), for diagnosing cervical cancer using images of individual cells. I trained CNN models on the SIPaKMed Cervical Cancer dataset, which includes images of five different cell types, including dyskeratotic and koilocytotic cells indicative of HPV infection. The models were evaluated using accuracy and the Matthews Correlation Coefficient (MCC), with dropout models and augmented datasets tested to improve performance. Surprisingly, the basic CNN model outperformed the dropout model, achieving an MCC of 0.95 on the unaugmented dataset. The findings suggest that minimal technology can yield high accuracy in cervical cancer diagnosis. These results highlight the potential of CNNs for diagnostics in resource-limited settings, especially with self-collected samples. Further validation on diverse data is essential to assess the generalizability of this approach and explore its role in bridging healthcare gaps in underserved areas.

20. The Effects of Losartan, an Angiotensin Receptor Blocker, on the Stress Response and Memory of Female Swiss Webster Mice
Emma Zappone and Julianna Lott
Faculty Sponsor(s): *Fr. Shawn Anderson O.S.B.*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Chronic stress, and the physiological response to it, has many adverse effects on the human body such as increased risk of cardiovascular disease, decreased ability to fight disease, and impaired memory formation. The physiological response to stress involves three main systems including the hypothalamic-pituitary axis, the sympathetic division of the autonomic nervous system, and the renin-angiotensin-aldosterone system. This physiological response leads to the release of glucocorticoids, such as corticosterone in mice which leads to increased blood glucose, and angiotensin II which amplifies the stress response, leading to increased heart rate, stroke volume, and blood pressure. So, mice undergoing restraint stress were hypothesized to have higher levels of fecal corticosterone, blood glucose, and more anxiety-like behaviors in behavioral testing than non-restraint control mice. Previous rodent studies show that Losartan, an angiotensin receptor blocker used to lower blood pressure, reduces the negative physiological consequences of chronic stress. Therefore, it was hypothesized that mice given Losartan with restraint stress would exhibit lower levels of fecal corticosterone, blood glucose, and exhibit less anxiety-like behaviors in behavioral testing than saline injected mice receiving restraint stress.

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21. The Polyphenols Curcumin and EGCG Function As Adjunct Therapeutics to Lower the Effective Dose of Selumetnib in Treatment of Neurofibromatosis Type 1 (NF1) Tumor Cells
Celia Monroy
Faculty Sponsor(s): *Dr. Bruce Bethke*
Discipline(s): Biology
Grants: *A.J. Palumbo Student Research Endowment*

Neurofibromatosis type 1 (NF1) is a genetic disorder characterized by the development of tumors along the nerve sheath, which can lead to severe and potentially life-threatening complications. While the MEK inhibitor Selumetinib has shown clinical promise in NF-1 treatment, its high cost warrants the exploration of alternative or complementary therapies. Polyphenols are naturally occurring potent antioxidants known to have medicinal properties, and the potential to combat tumor growth in patients. In this study, the synergistic effects of two naturally occurring polyphenols, curcumin and epigallocatechin gallate (EGCG), on NF1 tumor cells, both alone and in combination with Selumetinib were investigated. Two cell lines representing both malignant and benign neurofibroma cells were cultured and tested against a variety of Selumetinib doses and polyphenol concentrations. Cell viability was assessed at 24 and 48 hours post-treatment. Statistical analysis revealed that treatment using a reduced dosage (10 uM) of Selumetinib combined with polyphenols resulted in an equivalent toxicity to a higher dosage (25 uM) of Selumetinib alone. These findings suggest that curcumin and EGCG possess potential as adjunct therapies to reduce the concentration of Selumetinib utilized in the treatment of NF1-related tumors.

22. Synthesis of Potential Retinoid X Receptor (RXR)-Selective Agonists: Analogues of Bexarotene
Ian Buttermore
Faculty Sponsor(s): *Dr. Jason Vohs*
Discipline(s): Chemistry
Grants: *A.J. Palumbo Student Research Endowment*

Synthetic options for rexinoids, compounds known to bind at RXR sites, were investigated. RXR site binding induces apoptosis in cells and has been shown to be effective in cutaneous t-cell lymphoma (CTCL) treatment. An efficient rexinoid, commonly known as bexarotene, has FDA approval to treat CTCL; however, treatment can cause undesirable side effects presumably due to RAR site activity. Many of its analogues have been reported and tested for RXR site activity and selectivity, though none have surpassed bexarotene's ability. This project aimed to produce reported and novel analogues of bexarotene varying carboxylic acid position from para to meta and functional group identity, to show synthetic viability of new analogues.

23. Catalytic SABRE H1 Hyperpolarization of Pyridine in Aqueous Media by [IrCl(COD)(ITEG)]
Anthony Sparta
Faculty Sponsor(s): *Dr. Jason Vohs and Fr. Michael Antonacci O.S.B*
Discipline(s): Chemistry, Physics

Signal Amplification By Reversible Exchange (SABRE) is an emerging method to increase Nuclear Magnetic Resonance (NMR) signal by hyperpolarization of target substrates using an organometallic catalyst and parahydrogen. SABRE is also a promising technique for enhancing MRI sensitivity in vivo; however, the standard catalyst used, [IrCl(COD)(IMes)], is insoluble in water, and few potential

catalysts have shown the ability to hyperpolarize substrates in a solely aqueous media. Here, we report the synthesis of a novel water-soluble iridium-based catalyst, [IrCl(COD)(ITEG)], which showcases the ability to hyperpolarize pyridine in both deuterated methanol and deuterium oxide. 1H-NMR signal enhancement of pyridine was observed up to 83.5-fold higher than the thermal NMR signal in methanol-d4 using a 60.0 MHz NMR spectrometer. Similarly, enhancement in D2O was observed up to 1.6-fold. While research continues to work to improve [IrCl(COD)(ITEG)]'s efficiency in aqueous media, the ability to successfully hyperpolarize pyridine in both methanol and water provides a valuable step towards applications of SABRE hyperpolarization in vivo.

24. Mitigating Transition Metal Contamination Using Modified Hydrogels
Anna Taylor
Faculty Sponsor(s): *Dr. Daryle Fish*
Discipline(s): Chemistry

Abandoned Mine Drainage (AMD) is a major source of water pollution in Pennsylvania. AMD frequently contains transition metals such as Fe, Mn, and Al. This study utilized hydrogels modified with different chelating agents to adsorb Mn, Cu, and Zn. A zwitterionic spirocyclic Meisenheimer complex was synthesized from N,N'-dicyclohexylcarbodiimide, and picric acid, which was then integrated into a bisphenol A diglycidyl ether and polyethyleneimine hydrogel for future metal-binding studies.

25. Synthesizing Naftifine Derivatives Using the Boronic Acid Mannich Reaction to Expand Antifungal Chemical Libraries
Angelina Bucci
Faculty Sponsor(s): *Dr. Jason Vohs*
Discipline(s): Chemistry, Biochemistry

Combinatorial chemistry is a synthetic chemistry technique that utilizes components from each reactant to reduce waste. A simple yet reliable combinatorial chemistry method includes the Petasis or Boronic Acid Mannich reaction. This method combines a secondary amine, aldehyde, and boronic acid to synthesize a tertiary amine in as little as two steps. One application for this efficient reaction is in the production of an antimycotic known as naftifine. Naftifine has a central allylamine group consisting of an alkene group with an ethyl amine (C2H7N) bonded to one end of it. Being that the allylamine group is the main contributing factor in treating fungal infections, it was hypothesized that using different amines and aldehydes while maintaining the allylamine group would expand the chemical library of antifungals with sufficient yields.

26. WorkFlow Wizard
Nicholas Schiffer, Nicholas McCracken, Justin Gherman, and Jared Rivard
Faculty Sponsor(s): *Dr. Anthony Serapiglia*
Discipline(s): Computer Science

Efficient task management plays a critical role in productivity in both professional and personal settings. Despite the abundance of task management applications on the market today, many services are expensive, inconvenient, and bloated with unnecessary features. WorkFlow Wizard aims to streamline productivity and task management by providing an intuitive and simple approach to task management. We approached the development of this project using personal experience as well as comparing

existing products on the market to determine potential flaws that can be improved on. In this web application, users have the ability to create projects alongside team members, manage and create assignable tasks, visualize productivity, and efficiently complete projects in an organized manner. WorkFlow Wizard has the potential to enhance productivity, streamline workflows, and reduce stress for users, with no cost.

27. KNIGHT - Educational Cybersecurity Tools
Michael Astfalk, Matthew Alexander, Nicolas Domico, Nathan Helmer, and Timothy Pollock
Faculty Sponsor(s): *Dr. Anthony Serapiglia*
Discipline(s): Cybersecurity
Grants: *A.J. Palumbo Student Research Endowment*

Identifying the need to make cybersecurity practices and methods more accessible to the average student, this project seeks to create a product that bridges initial learning gaps and difficulties in the cybersecurity field. Focusing on penetration testing (pentesting) and red/blue team operations, the project has culminated in a pentesting "dropbox", a small device in the shape of a box that can be dropped into an existing network and used to remotely perform reconnaissance and exploitation on a target system. Using an intuitive graphical user interface and requiring no prior knowledge to set up and use, the "dropbox" leverages standard cybersecurity tools and concepts such as Kali Linux, NMAP, vulnerability scanning, and Common Vulnerabilities and Exposures (CVEs) to provide a hands-on, educational introduction to pentesting methodologies. The "dropbox" serves not only as a useful cybersecurity tool but specifically aims to provide an educational walk-through for those beginning to study network security.

28. Harmful Algal Bloom's Effects on Dissolved Oxygen in Saint Vincent Lake
Dominic Lessard
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

Harmful algal blooms have large affects on both aquatic and terrestrial ecosystems. They have a major impact on water quality in within the body of water. This includes making dissolved oxygen levels destabilize within the body of water. To find the impacts harmful algal blooms have on dissolved oxygen a sonde with chlorophyll-a and dissolved oxygen saturation probes was placed into Saint Vincent Lake. The probes were left in the lake for ~3 months and took measurements every 15 minutes. This project showed that when there are times of high concentration of chlorophyll-a, which represents harmful algal blooms, dissolved oxygen is very unstable, but when there are lower concentrations of chlorophyll-a dissolved oxygen levels are a lot more stable. The data also shows that on a day-to-day basis the dissolved oxygen levels shoot up during the day and drop down during the night. This has a huge affect on aquatic ecosystems because many aquatic species are unable to deal with this much change within their environment. Aquatic species that live in lakes affected by harmful algal blooms live in a lake that bounces between hyperoxia and anoxia all in a day's time. This can be very detrimental to many aquatic species.

Poster Session 2: 4:15pm – 5:30pm

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29. Impact of Varying Salinity Levels on Juvenile Diamondback Terrapins
Abigail Stewart
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

Diamondback terrapins (Malaclemys terrapin) are semi-aquatic turtles native to coastal habitats where salinity levels can vary significantly. This study evaluates the effects of salinity on the growth and feeding behavior of juvenile terrapins by comparing their responses in freshwater, brackish, and high-salinity environments. I hypothesized that terrapins would show the highest growth rates and feeding activity in freshwater or brackish conditions. In contrast, high salinity would lead to reduced feeding, slower growth, and signs of physiological stress. However, the results did not show a substantial difference in growth or feeding behavior across the salinity treatments, although there was a general avoidance of the higher salinity water. These findings suggest that juvenile terrapins may possess a broader tolerance to salinity levels than previously assumed, providing insight into their adaptability and informing habitat conservation strategies for this vulnerable species.

30. Plant Biodiversity in Human Influenced Environments
John Pawlak
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

As a result of climate change and human activity, global ecosystems are changing at an accelerating rate. Due to this rapid change, it is imperative to understand how the ecosystems of manmade or influenced environments operate biologically. Using botanical biodiversity data sampled from different manmade environments around Saint Vincent College, different categories of land management were compared in how biodiverse they were. Through different biodiversity indexes it was found that the Nature Reserve site was both more biodiverse and ecologically uneven than the Agricultural and Wetlands sites that were examined. In addition, several patterns were found which would support the importance of species composition of the environments being an important factor in how biodiverse an environment is. Using this information, further dedicated studies could be performed to assess the ecological effects of different land management styles and how interactions between species could be analyzed to further promote the biological diversity of environments influenced by human activity.

31. Plant Structure and Growth When Faced with Abiotic Stressors
Gabrielle Minor
Faculty Sponsor(s): *Dr. Peter Smyntek*
Discipline(s): Environmental Science

With the world facing so many critical issues can plant life keep up? With wildfires devastating California, saltwater intruding on our coastlines, and weather patterns becoming unpredictable, it would be a relief to know that our food sources will be safe from whatever comes next. Plants are not able to adapt fast enough to the sudden changes the Earth is undergoing. With rapid climate change, plants have a more difficult time coping with large variations in temperature and precipitation. For this project, I assessed the macro level (leaf content and pea production) and micro level (cell vacuole size). These plants were stressed by abiotic media. Using two different salt concentrations, different kinds of water (DI and tap), and even acid mine drainage; I monitored the differences over weeks till maturation to see if they performed similarly. All plants across the spectrum performed well, with minimal differences in

reproduction rate, vacuole size, and water content loss. Differences in water or low levels of pollution may not greatly affect our food source in terms of their growth and yield, especially when watered regularly.

32. How Using Social Media in Healthcare Can Affect a Healthy Lifestyle
Edina Prue
Faculty Sponsor(s): *Dr. Andrew Palko*
Discipline(s): Health Science

Social media integration into healthcare is a rapidly expanding area of research, given its profound impact on how individuals access health information and manage their well-being. Social media platforms have the potential to promote healthier lifestyles by providing tools for health education, peer support, and motivation. They allow healthcare professionals to disseminate accurate health information quickly and encourage behavior change through interactive and engaging methods. However, the effects of social media use in healthcare are not uniformly positive. This research aims to evaluate the role of social media in healthcare as a facilitator of positive health behaviors. By understanding its effects, healthcare providers and policymakers can develop strategies to maximize benefits, such as improving patient education and fostering supportive communities, while minimizing risks, like misinformation and inequities. Exploring these dynamics is essential to harnessing the full potential of social media in promoting a healthy lifestyle in an increasingly digital world.

33. Concussion Incidence and Promotion in Rugby: The Rule of Neck Strength Training
Joseph Ivory
Faculty Sponsor(s): *Dr. Andrew Palko*
Discipline(s): Health Science

Rugby is a high contact sport with an increasing presence in American collegiate level sports. Rugby has the highest documented incidences of concussion among high contact sports. It is projected that documented concussions account for 50% of the concussions sustained during games and practices. Concussions are a type of traumatic brain injury, characterized by acute dysfunctions in motor and neural control. Repeated concussions may lead to CTE (Chronic Traumatic Encephalopathy). CTE is a life altering disease that reduces quality of life and increases the risk of death. The high incidence of concussions in rugby is due to the lack of effective protective equipment and poor detection techniques. It was found that an increase by one pound of overall neck strength reduces the incidence of concussion by 5%. A study tested an eight-week self-resistance neck strength training program that improved the neck strength of the test group by 24% more than the control. The implementation of a self-resistance neck strength training is an efficient and cost-effective intervention that reduces the risk of concussions in contact sports. By recording the neck strength of every player, trainers and coaches can construct a personal risk rating to aid in on-field concussion detection.

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34. Architecture in Ireland
Grace Lamborne
Faculty Sponsor(s): *Fr. Philip Kanfush O.S.B. and Mr. Shannon Jordan*
Discipline(s): History

I will give examples and show how the culture of Ireland influences the structures and architecture throughout history. We saw many different buildings and structures that have been built throughout different course of time. These structures have alot of history and I think its important to talk about them. They have rich folklore and stories attached to them. That is why I think it is important to highlight them throughout this project.

35. Festival of San Fermin
Aiden Bewick
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline(s): Modern & Classical Languages

The Festival of San Fermín is a great spectacle in the world. The festival lasts for a week and takes place in the city of Pamplona, Spain. The celebrations start on the 6th of July with a fireworks display and end on the 14th of July with a song called 'Pobre de mí'. The Festival of San Fermín has many traditional events and folklore, but the most famous event in the festival is the Running of the Bulls. In addition, the Fiesta de San Fermín honors San Fermín, the patron saint of Navarre. It is evident that the history, traditions and cultural identity of the Festival of San Fermín show the mix of culture that epitomizes the fun of the festival.

36. The Fallas of Valencia: Fire and Tradition
Victoria Sarver
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline(s): Modern & Classical Languages

The Fallas of Valencia are a tradition celebrated in Valencia, Spain every year. This festival has a history in art and culture. Artists come and make small to grand statues called fallas to represent a story or important figures. The main festival takes place between March 1st and March 19th to celebrate the coming of spring. Many events happen during the 19 days but also the months leading up to it. The days are divided into different events at different times. The events range from fire work shows to parades of people in traditional clothes. Community and tradition are very important. At the end of the festival the works of art are set to flame as it is tradition. The Fallas of Valencia is a beautiful festival that everyone should go to see and enjoy.

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37. "A Quantitative Analysis of Stockroom Workflow Optimization Using Lean Six Sigma Methodologies to Reduce Search Time and Operational Downtime at the Elliot Group"
Liam Hescox and Adam Liston
Faculty Sponsor(s): *Mr. Mark Kachmar*
Discipline(s): Operational Excellence

EBARA Elliott Energy (EEE) has a Maintenance Team that maintains the Jeannette facility and production equipment. To support their mission, they have various stock locations throughout the plant that are operating ineffectively. This disorganization and hoarding impacts the Maintenance Team's ability to provide efficient, low cost, service to the Plant impacting overall productivity.

38. Improving Cosmic Ray Shower Event Detection with GPS Timing
Coty Walters
Faculty Sponsor(s): *Dr. David Grumbine*
Discipline(s): Physics
Grants: *A.J. Palumbo Student Research Endowment*

This study investigates the use of Cosmic Watch Muon Detectors in coincidence mode for studying individual cosmic ray shower events. The primary objective of this research is to assess the effectiveness of the current coincidence mode setup in detecting individual cosmic ray showers and to explore potential enhancements through modifications to the detector design. Specifically, we propose incorporating GPS modules into the detectors to achieve precise time synchronization, thereby eliminating the need for physical connecting cables. This modification involves updates to the printed circuit board (PCB) design and the integration of a new Arduino Nano RP2040 microcontroller, resulting in a more compact, wireless system with significantly enhanced timing precision.

39. Monitoring Radon Washout Events with Modified CosmicWatch Radiation Detectors
Matthew Vanden Berk and Coty Walters
Faculty Sponsor(s): *Dr. David Grumbine, Fr. Michael Antonacci O.S.B., and Dr. Daniel Vanden Berk*
Discipline(s): Physics
Grants: *A.J. Palumbo Student Research Endowment*

Gamma-ray intensity variations were monitored for precipitation events over several months, including the remnants of two tropical cyclones, using a set of modified CosmicWatch radiation detectors. Clear signatures of radon washout/rainout were recorded for each event with > 1mm of precipitation, with gamma-ray count rates in excess of 50% above normal in some cases. All of the washout/rainout events were verified by measurements from an on-site rain gauge. The results demonstrate that low-cost CosmicWatch systems can be used for sensitive atmospheric radon monitoring.

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40. Monitoring Space Weather with CosmicWatch Muon Detectors
A. Battaglia, Matthew Vanden Berk, and Coty Walters
Faculty Sponsor(s): *Dr. Daniel Vanden Berk*
Discipline(s): Physics
Grants: *A.J. Palumbo Student Research Endowment*

The Earth is bombarded continuously by charged particles from outer space; these "cosmic rays"—mostly protons—interact with the Earth's atmosphere, creating a shower of particles, including muons that reach the Earth's surface. The rate of cosmic rays impacting the Earth has a significant dependence on solar activity. We have been monitoring the muon rate at Earth's surface using student-built CosmicWatch detectors. Over several months in 2024, we have measured variations in the muon rate corresponding to solar activity, including a number of intense solar storms. We compare our results to those of cosmic ray monitoring stations around the world. Our results show that space weather can be monitored by inexpensive, easily deployable CosmicWatch detectors.

41. Underrepresenting World Peoples: Augmenting Limits of World History Textbooks
Isabella Jolly
Faculty Sponsor(s): *Dr. Elaine Bennett*
Discipline(s): Anthropology, History
Grants: *A.J. Palumbo Student Research Endowment*

Global history textbooks are tasked with telling the history of the world, and authors pack thousands of years of history into short texts. However, this often means that a country's history is summed up in a few paragraphs, filled with generality and homogeneity while the influence and contributions of diverse populations and cultures is understated and underrepresented. This project aims to identify an approach to guide educators to efficiently move beyond the tropes on "major world civilizations," so their students can recognize that the overviews and stereotypes mask the complexity and linguistic, cultural, and economic diversity of these populations.

42. La Tomatina: Culture, Values, and Festivities of Spain's Most Unique Celebration
Kennedy Sheriff
Faculty Sponsor(s): *Dr. Juan Carlos Rivas*
Discipline(s): Modern & Classical Languages

Spain is home to a complex tapestry of traditions inspired by the country's cultural values. One such tradition is known as "La Tomatina." Spain treasures this event that is hosted in the Valencia region's town of Buñol. An otherwise quiet town, Buñol becomes a hub of celebration and tourism once a year on the last Wednesday of August for the festival. People from all over the world are attracted to the small town by the unique "La Tomatina," in which participants put on a city-sanctioned food fight. Participants climb a pole to kick off the festival, and tomatoes hurl through the streets after the official start. This celebration has a mysterious and interesting backstory, reflects the value of Spain, and serves as a source of fun every year! This poster presentation will focus on the history, elements, and details of "La Tomatina."

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43. Folklore in Irish Politics
Noah Johnson
Faculty Sponsor(s): *Dr. Shannon Jordan and Fr. Philip Kanfush O.S.B.*
Discipline(s): Politics and Political Science, Folklore

My paper/poster will explore the past and present role of folklore in Irish politics, focusing on how it helped shape the country's main political parties and continues to influence them today. It will begin by examining the historical foundations of Fine Gael, Fianna Fáil, and Sinn Féin, analyzing how folklore played a role in their formation and the establishment of their values. From there, it will explore the modern stances of these parties, looking at how their current policies and ideologies connect to their historical roots. Finally, the paper will consider what these parties, or the Irish government as a whole, are doing today to promote and protect folklore and Irish culture, whether through legislation, cultural initiatives, or political messaging.

44. Investigating the Potential of Antioxidant Functionalized SPIONs for Reducing Reactive Oxygen Species
Alyssa Tjarks
Faculty Sponsor(s): *Dr. Matthew A. Fisher*
Discipline(s): Biochemistry

Superparamagnetic iron oxide nanoparticles (SPIONs) made from Magnetite (Fe_3O_4) have gathered significant interest for their versatility in medical applications including MRI imaging. However, the iron composition of SPIONs can induce oxidative stress through the generation of reactive oxygen species (ROS), potentially leading to cellular damage. This project aims to assess whether these functionalized, or rather surface modified nanoparticles can maintain their intrinsic superparamagnetic functionality, which is crucial for MRI imaging, while simultaneously reducing ROS-induced cellular damage. To address this, SPIONs functionalized with antioxidant enzymes, specifically catalase (CAT) and superoxide dismutase (SOD) immobilized on their surfaces, were attempted to be synthesized. ROS formation was evaluated using a fluorometric detection assay.

Quick Reference Guide for Student Locations

	Student First Name	Student Last Name	Type	Poster Number	Poster Session	Room	Discipline(s)
1	Tanner	Adomaitis	Oral	4	2:45-4:00pm	E106	Politics and Political Science
2	Matthew	Alexander	Poster	27	4:15-5:30pm		
3	Gladys	Alexandre	Poster	13	4:15-5:30pm		
4	Thomas	Anand	Oral	10	4:15-5:30pm	E106	Biochemistry
5	Sydney	Andrews	Poster	43	2:45-4:00pm		
6	Caterina	Arcara	Poster	3	4:15-5:30pm		
7	Michael	Astfalk	Poster	27	4:15-5:30pm		
8	Michael	Azinger	Oral	1	2:45-4:00pm	E102	Psychological Science
9	Noah	Baker	Poster	10	2:45-4:00pm		
10	Noah	Baker	Oral	8	4:15-5:30pm	E103	Data Science
11	Anthony	Barle	Oral	5	2:45-4:00pm	E108	Mathematics
12	Annika	Barnes	Poster	16	4:15-5:30pm		
13	Lauren	Bash	Poster	18	4:15-5:30pm		
14	A.	Battaglia	Poster	40	4:15-5:30pm		
15	Ariel	Beard	Oral	1	2:45-4:00pm	E102	Psychological Science
16	Jeremy	Bender	Poster	2	4:15-5:30pm		
17	Lindsey	Benjamin	Poster	16	4:15-5:30pm		
18	Aiden	Bewick	Poster	35	4:15-5:30pm		
19	Peter	Billey	Poster	13	2:45-4:00pm		
20	Rebekah	Bollman	Oral	4	2:45-4:00pm	E106	Politics and Political Science
21	Jacqueline	Brace	Poster	14	2:45-4:00pm		
22	Sophia	Bringman	Oral	4	2:45-4:00pm	E106	Philosophy
23	Joel	Brooks	Poster	4	4:15-5:30pm		
24	Evan	Brozenich	Oral	10	4:15-5:30pm	E106	Biology
25	Angelina	Bucci	Poster	25	4:15-5:30pm		
26	Ian	Buttermore	Poster	22	4:15-5:30pm		
27	Nora	Cabala	Poster	9	2:45-4:00pm		
28	Nathan	Caldwell	Oral	8	4:15-5:30pm	E103	Mathematics
29	Nathan	Caldwell	Oral	7	4:15-5:30pm	E102	Computer Science
30	Sydney	Campbell	Poster	11	4:15-5:30pm		
31	Olivia	Carr	Poster	1	4:15-5:30pm		
32	Madison	Cassidy	Oral	2	2:45-4:00pm	E103	Criminology, Law and Society
33	Kendall	Castor	Poster	8	2:45-4:00pm		
34	Riley	Chase	Poster	17	2:45-4:00pm		
35	Celena	Colcombe	Poster	36	2:45-4:00pm		
36	Amy	Cruz-Gonzalez	Poster	3	2:45-4:00pm		
37	Shannon	Dalton	Oral	6	2:45-4:00pm	S201	History
38	Tyler	Dancu	Oral	11	4:15-5:30pm	E108	Engineering
39	Joseph	Deschepper	Poster	4	2:45-4:00pm		
40	Nicolas	Domico	Poster	27	4:15-5:30pm		
41	Lizzie	Dudley	Oral	7	4:15-5:30pm	E102	Engineering
42	Leah	Duncan	Poster	12	4:15-5:30pm		
43	Ethan	Dunsey	Oral	8	4:15-5:30pm	E103	Data Science
44	Ethan	Dutka	Oral	5	2:45-4:00pm	E108	Other
45	Colt	Easterling	Poster	26	2:45-4:00pm		
46	Hope	Farley	Poster	42	2:45-4:00pm		
47	Alexandros	Fekos	Poster	2	4:15-5:30pm		
48	Julianne	Fetter	Poster	19	4:15-5:30pm		
49	Katherine	Folmar	Oral	6	2:45-4:00pm	S201	History
50	Fulton	Fontana	Oral	11	4:15-5:30pm	E108	Engineering
51	Chloe	Fontanazza	Poster	10	4:15-5:30pm		
52	Aidan	Fraser	Poster	32	2:45-4:00pm		
53	Aidan	Fraser	Poster	6	4:15-5:30pm		
54	Daniel	Geis	Poster	19	2:45-4:00pm		
55	Justin	Gherman	Poster	26	4:15-5:30pm		
56	Brayden	Gibson	Oral	11	4:15-5:30pm	E108	Engineering
57	Mark	Grenchik	Oral	11	4:15-5:30pm	E108	Engineering
58	Zachary	Grubich	Poster	6	2:45-4:00pm		
59	Derek	Hald	Oral	8	4:15-5:30pm	E103	Data Science
60	Alexander	Hampton	Poster	2	2:45-4:00pm		
61	Joshua	Hartner	Poster	40	2:45-4:00pm		
62	Joshua	Havrilla	Oral	5	2:45-4:00pm	E108	Mathematics
63	Deven	Haywood	Oral	5	2:45-4:00pm	E108	Mathematics
64	Nathan	Helmer	Poster	27	4:15-5:30pm		
65	Rachel	Hernandez	Poster	3	4:15-5:30pm		
66	Liam	Hescox	Poster	37	4:15-5:30pm		
67	Ethan	Hill	Poster	35	2:45-4:00pm		

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	Student First Name	Student Last Name	Type	Poster Number	Poster Session	Room	Discipline(s)
68	Domenic	Hipps	Poster	21	2:45-4:00pm		
69	Marisa	Hooper	Oral	7	4:15-5:30pm	E102	Communication and Media Studies
70	Marisa	Hooper	Oral	12	4:15-5:30pm	S201	English
71	Chris	Hopstetter	Oral	7	4:15-5:30pm	E102	Engineering
72	Payton	Hrehovchak	Poster	37	2:45-4:00pm		
73	Ben	Hudson	Poster	33	2:45-4:00pm		
74	Hannah	Hughes	Poster	13	4:15-5:30pm		
75	Rachel	Hutchinson	Poster	31	2:45-4:00pm		
76	Mike	Iuzzolino	Oral	11	4:15-5:30pm	E108	Engineering
77	Jamison	Ives	Oral	7	4:15-5:30pm	E102	Engineering
78	Joseph	Ivory	Poster	33	4:15-5:30pm		
79	G.Joseph	Jafarace	Oral	11	4:15-5:30pm	E108	Engineering
80	Maura	Jodkin	Poster	34	2:45-4:00pm		
81	Noah	Johnson	Poster	43	4:15-5:30pm		
82	Isabella	Jolly	Poster	41	4:15-5:30pm		
83	Charlotte	Jordan	Poster	30	2:45-4:00pm		
84	Vincent	Kaschauer	Poster	14	4:15-5:30pm		
85	Morgan	Klingeman	Oral	11	4:15-5:30pm	E108	Engineering
86	Nicolette	Kloes	Poster	20	2:45-4:00pm		
87	Madeline	Klun	Oral	7	4:15-5:30pm	E102	Communication and Media Studies
88	Malley	Kotula	Poster	22	2:45-4:00pm		
89	Anna	Kozemchok	Oral	10	4:15-5:30pm	E106	Biology
90	Jakob	Krumenaker	Poster	23	2:45-4:00pm		
91	Rebecca	Kurylo	Poster	8	4:15-5:30pm		
92	Grace	Lamborne	Poster	34	4:15-5:30pm		
93	Grace	Lamborne	Poster	35	2:45-4:00pm		
94	Stephen	Laun	Poster	41	2:45-4:00pm		
95	Kaley	Lazere	Oral	1	2:45-4:00pm	E102	Psychological Science
96	Brian	Lee	Poster	7	2:45-4:00pm		
97	Abigail	Leskovansky	Oral	7	4:15-5:30pm	E102	Computer Science
98	Dominic	Lessard	Poster	28	4:15-5:30pm		
99	Luke	Levendosky	Poster	21	2:45-4:00pm		
100	Lydia	Lieb	Oral	10	4:15-5:30pm	E106	Biology
101	Jedidiah	Lingenfelter	Poster	38	2:45-4:00pm		
102	Kate	Lipscomb	Poster	29	2:45-4:00pm		
103	Kate	Lipscomb	Poster	9	2:45-4:00pm		
104	Adam	Liston	Poster	37	4:15-5:30pm		
105	Stefanie	Livelsberger	Poster	15	4:15-5:30pm		
106	Julianna	Lott	Poster	20	4:15-5:30pm		
107	Noah	Lukowsky	Oral	6	2:45-4:00pm	S201	History
108	Makenna	Maier	Poster	21	2:45-4:00pm		
109	Alejandro	Martinez	Poster	10	2:45-4:00pm		
110	Alejandro	Martinez	Oral	8	4:15-5:30pm	E103	Data Science
111	Emma	Martz	Poster	3	4:15-5:30pm		
112	Ethan	McClain	Poster	17	4:15-5:30pm		
113	Nicholas	McCracken	Poster	26	4:15-5:30pm		
114	Thomas	McLaughlin	Oral	7	4:15-5:30pm	E102	Computer Science
115	Kiley	Meek	Poster	13	2:45-4:00pm		
116	Trinity	Miller	Poster	9	2:45-4:00pm		
117	Trinity	Miller	Oral	8	4:15-5:30pm	E103	Data Science
118	Gabrielle	Minor	Poster	31	4:15-5:30pm		
119	Jacob	Mock	Oral	4	2:45-4:00pm	E106	Politics and Political Science
120	Celia	Monroy	Poster	21	4:15-5:30pm		
121	Sophia	Nelson	Oral	12	4:15-5:30pm	S201	English
122	Kirston	Norton	Oral	5	2:45-4:00pm	E108	Mathematics
123	William "Mac"	Nowalk	Oral	4	2:45-4:00pm	E106	Philosophy
124	Justin	Patenaude	Poster	15	2:45-4:00pm		
125	John	Pawlak	Poster	30	4:15-5:30pm		
126	Timothy	Pollock	Poster	27	4:15-5:30pm		
127	Jacob	Polosky	Oral	8	4:15-5:30pm	E103	Data Science
128	Edina	Prue	Poster	32	4:15-5:30pm		
129	John	Quinn	Oral	6	2:45-4:00pm	S201	History
130	Max	Radcliffe	Poster	14	2:45-4:00pm		
131	Natalie	Rebstock	Poster	5	2:45-4:00pm		
132	Eduardo	Richa	Oral	11	4:15-5:30pm	E108	Engineering
133	Anthony	Richards	Poster	2	4:15-5:30pm		
134	David	Richman	Oral	7	4:15-5:30pm	E102	Computer Science
135	Jared	Rivard	Poster	26	4:15-5:30pm		
136	Pearl	Russell	Poster	9	4:15-5:30pm		
137	Alexander	Ryan	Poster	25	2:45-4:00pm		
138	Victoria	Sant	Oral	11	4:15-5:30pm	E108	Engineering
139	Victoria	Sarver	Poster	36	4:15-5:30pm		
140	Antonio	Scalamogna	Poster	44	2:45-4:00pm		

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	Student First Name	Student Last Name	Type	Poster Number	Poster Session	Room	Discipline(s)
141	Nicholas	Schiffer	Poster	26	4:15-5:30pm		
142	Madison	Scola	Poster	24	2:45-4:00pm		
143	Gabriel	Seevers	Oral	12	4:15-5:30pm	S201	English
144	Mason	Seftas	Oral	8	4:15-5:30pm	E103	Data Science
145	Josie	Seymour	Poster	18	2:45-4:00pm		
146	Kennedy	Sheriff	Poster	27	2:45-4:00pm		
147	Kennedy	Sheriff	Poster	42	4:15-5:30pm		
148	Rebecca	Slate	Poster	7	4:15-5:30pm		
149	Samuel	Snyder	Poster	39	2:45-4:00pm		
150	Ryan	Snyder	Poster	21	2:45-4:00pm		
151	Anthony	Sparta	Poster	23	4:15-5:30pm		
152	Mattia	Speretta	Oral	5	2:45-4:00pm	E108	Mathematics
153	Grace	Steen	Poster	17	2:45-4:00pm		
154	Matthew	Stehnach	Poster	11	2:45-4:00pm		
155	Matthew	Stehnach	Oral	8	4:15-5:30pm	E103	Mathematics
156	Abigail	Stewart	Poster	29	4:15-5:30pm		
157	Katelyn	Stokan	Poster	13	4:15-5:30pm		
158	Anna	Taylor	Poster	24	4:15-5:30pm		
159	Kayleigh	Thompson	Poster	16	2:45-4:00pm		
160	Louisa	Tiriobo	Poster	37	2:45-4:00pm		
161	Emma	Torretti	Poster	12	2:45-4:00pm		
162	Olivia	Trotter	Poster	28	2:45-4:00pm		
163	Matthew	Vanden Berk	Poster	38	4:15-5:30pm		
164	Matthew	Vanden Berk	Poster	40	4:15-5:30pm		
165	Matthew	Vanden Berk	Oral	5	2:45-4:00pm	E108	Mathematics
166	Cole	Vay	Poster	1	2:45-4:00pm		
167	Alexandria	Votovich	Poster	5	4:15-5:30pm		
168	Coty	Walters	Poster	39	4:15-5:30pm		
169	Coty	Walters	Poster	38	4:15-5:30pm		
170	Coty	Walters	Poster	40	4:15-5:30pm		
171	Evan	Wiewiora	Poster	19	2:45-4:00pm		
172	Matthew	Wilkinson	Poster	11	2:45-4:00pm		
173	Matthew	Wilkinson	Oral	8	4:15-5:30pm	E103	Data Science
174	Adam	Wood	Oral	3	2:45-4:00pm	E104	Engineering
175	Adam	Wood	Oral	9	4:15-5:30pm	E104	Engineering
176	Dakota	Yates	Poster	35	2:45-4:00pm		
177	Benjamin	Yeskey	Oral	5	2:45-4:00pm	E108	Mathematics
178	Emma	Zappone	Poster	20	4:15-5:30pm		