
# Scholars Day 2024

A Celebration of Student Scholarship

Friday, April 19, 2024
8 a.m. – 6 p.m.

James Commons and Curtin Special Events Room
Campus Center

# From the President

It brings me great joy to welcome our student scholars, family members, faculty mentors and our larger community to this Scholars Day 2024.

Today you share with us the results of your creativity, diligent research and the exploration of your full intellectual potential. You, my burgeoning scholars, have learned to explore your passions and interests under the guidance and mentorship of our dedicated faculty. In true Jesuit fashion, you have learned that asking essential questions is only the first step in exploring the unknown. For it is through hard work, long hours, and persistent and rigorous study that you sought the answers to those questions. Perhaps most important, you are now sharing the results of your studies with others, which will, in turn, help spur the next series of questions. This year, we also welcome our graduate students to this exhibition of intellectual inquiry. The 500-year-old tradition of Jesuit education requires us to be active learners and to use our gifts to make the world a better place.

Let us also thank your families, loved ones and former teachers who have helped guide you along the way. Additionally, I am deeply grateful to and inspired by our faculty, who place great emphasis on teaching and mentoring and who see the vast potential in all of you.

Your work today is only the first step, I hope, of a lifetime of learning, creativity and intellectual inquiry. Congratulations, scholars, on showcasing your expertise and being exemplars of Le Moyne's Jesuit intellectual tradition. I, and all of the Le Moyne community, are deeply proud of you.

Warm regards,
Linda M. LeMura, Ph.D.
*President*

# From the Provost

It gives me immense pleasure to congratulate you on your inspiring accomplishments. Scholarly inquiry is an exciting, demanding, and rewarding undertaking. As you well know, the pursuit of new knowledge requires determination, resilience, creativity, passion, and humility. Scholarship also leads to feelings of joy and self-confidence, a sense of purpose and achievement, and new opportunities for personal and professional growth.

Your dedication to excellence and your many hours of hard work are a source of pride and inspiration to all of us at Le Moyne. While conducting research can sometimes be a solitary endeavor, scholars benefit tremendously from numerous sources of support, including research partners, faculty mentors, friends, and family members. I extend my thanks to everyone who has accompanied our scholars on their intellectual journeys.

On Scholars Day, we celebrate the spirit of inquiry and the pursuit of knowledge that remain an enduring part of our common liberal arts mission as students and educators. To those of you participating in today's events as undergraduates, whether your formal studies will come to an end when you graduate from Le Moyne or you will pursue graduate education, I am confident that the knowledge, skills, and habits of mind you have developed as a scholar will serve you well in your future endeavors. And to the graduate students here today, I hope that your experience conducting research at an advanced level is personally gratifying and professionally fulfilling.

Once again, congratulations on all that you have achieved and thank you for being such a vital part of the Le Moyne College community.

Best wishes,
Jim Hannan, Ph.D.
*Provost and Vice President for Academic Affairs*

# From the Dean of the Carroll College of Arts and Sciences

Following in Le Moyne College's rich tradition of excellence in student research, it is my honor and privilege to congratulate our student scholars and their mentors on Scholars Day 2024. In addition, I would like to extend a warm welcome to everyone who joins us today as we recognize the accomplishments of these talented students and the faculty members who skillfully guide them on their path to becoming scholars.

Independent scholarship takes dedication, creativity, energy and enthusiasm. Le Moyne is proud to acknowledge all our student scholars for their efforts in engaging with challenging questions by thinking critically and striving for excellence as they work toward identifying solutions.

As the scholars meet here today to discuss and explore future projects, both here at Le Moyne and beyond the college experience, we encourage them to use the skills they have learned at Le Moyne as they continue to exemplify key goals of a Jesuit education: being lifelong learners, builders of knowledge, and women and men for others.

Once again, to all 2024 student scholars, my heartiest congratulations on all that you have achieved!

Eileen M. Angelini, Ph.D.
*Dean of the Carroll College of Arts and Sciences*

## From the Dean of the Madden College of Business and Economics

First, congratulations to the students and their faculty mentors on your achievements. Across all disciplines, academic research asks and answers the questions that propel civilization forward. At the Madden School of Business, we are fully aware that research is very often the catalyst for innovation. These explorations help solve the problems of our time and ensure that society does not become stagnant. Represented here today, we see the symbiotic relationship between academia and society, reminding us that without researchers and their work, we stand still, we fail to evolve, and eventually, we fall behind. Through the work of our young scholars, we celebrate this relationship and, most of all, the Le Moyne students who are poised to become the innovators and leaders of tomorrow.

Sincerely,
Jim Joseph '83, Ed.D. '23
*Dean of the Madden College of Business and Economics*
*Vice President for Advancement and Innovation*
*Carroll School Ignatian Global Fellow at Boston College*

## From the Dean of the Purcell School of Professional Studies

The celebration of student scholarship and research has become a ritual at Le Moyne College, which celebrates what is at the very core of our Ignatian mission. It is the collaborative relationship between student and faculty mentor that helps produce a graduate who has the mental capacity and passion to make our world a better place. Your contribution today is evidence of the rich intellectual environment that thrives in our academic enterprise. Our faculty in the Purcell School of Professional Studies recognize the important role of research and scholarship in preparing tomorrow's educators, leaders and health care professionals. We congratulate our student and faculty presenters today for their commitment to this work, and more importantly, for their collaborative efforts which give testimony to the academic excellence of our College.

Sincerely,
Margaret (Meega) Wells, Ph.D., R.N., ANP-BC
*Dean of the Purcell School of Professional Studies*

# About Le Moyne College Student Scholars Day

Welcome to Le Moyne College Student Scholars Day, a tradition that started with the Undergraduate Research Symposium in 1998. Scholars Day 2024 celebrates the research, entrepreneurial and creative scholarly accomplishments of students across all academic disciplines. Today's program reveals how vibrant scholarly activity is on the Le Moyne College campus, with approximately 60 students representing more than 15 academic majors presenting their work. Student scholarship extends far beyond Scholars Day; our students publish in scholarly journals, present their work at academic conferences, produce works of art, and participate in theatrical and cinematographic productions, as just a few examples. Our students continue to impress us with their accomplishments after they graduate from Le Moyne. This year our program contains a number of graduate student presenters as well as undergraduates. We are delighted to have you join us for this celebration of our students' achievements.

Emily M. Harcourt, Ph.D.
Associate Professor of Chemistry
*Chair of the Student Research Committee*

# Schedule of Events

| | |
|---|---|
| 8:15 – 9:15 a.m. | Continental Breakfast |
| 8:15 – 8:30 a.m. | Welcoming Remarks<br>Emily Harcourt, Ph.D.<br>*Associate Professor of Chemistry*<br>*Chair of the Student Research Committee*<br><br>Godriver Odhiambo, Ph.D.<br>*Associate Professor of History*<br>*2022-2023 Louis D. DeGennaro, Ph.D.*<br>*Undergraduate Mentor of the Year* |
| 8:30 a.m. – 12:15 p.m. | Integral Honors Presentation Session |
| 12:15 – 1:15 p.m. | Lunch |
| 12:30 – 1:15 p.m. | Guest Speaker<br>Eain A. Murphy, Ph.D.<br>*Associate Professor of Microbiology and Immunology*<br>*SUNY Upstate Medical University* |
| 1:15 – 3:15 p.m. | Afternoon Undergraduate Presentation Session |
| 3:15 – 4:15 p.m. | Graduate Presentation Session |
| 4:30 – 6 p.m. | Poster Session and Closing Reception<br>(Beer, wine and hors d'oeuvres) |

# Schedule of Sessions

## 8:30 a.m. – 12:15 p.m. Integral Honors Presentation Session

| | |
|---|---|
| 8:30 – 8:45 a.m. | Syracuse, N.Y.: A Case Study in Urban Green Space and Social Justice<br>Joshua Caldwell |
| 8:45 – 9 a.m. | Adolescent Trauma's Impact on the Sympathetic Nervous System and Stress Response Into Adulthood<br>Preston Taylor |
| 9 – 9:15 a.m. | Music Therapy and its Effective Use in Complementary Care Programs for Oncology Patients<br>Mary Chidester |
| 9:15 – 9:30 a.m. | An Analysis of Current Research on Molar Incisor Hypomineralization: Exploring Risk Factors, Disease Implications, and Treatment Options<br>Emily O'Reilly |

| | |
|---|---|
| 9:30 – 9:45 a.m. | IVF and Food Allergies: Exploring Potential Biological and Social Connections<br>Joseph Pastore |
| 9:45 – 10 a.m. | Zipf's Law Revisited: Shades of Grey in Research Misconduct<br>Victoria Sgarlata |
| 10 – 10:15 a.m. | Combatting Stability and Sustainability Issues Within Perovksite Solar Cells Using Recycled Polymers<br>Evan Buckwalter |
| 10:15 – 10:30 a.m. | Turmeric, Tradition, and the Novel Synthesis of Alkylated Carbocyclic Curcuminoids<br>Sadie Davis |
| 10:30 – 10:45 a.m. | Post-Mortem Metabolic Contamination and the State of Forensic Science in the United States<br>Jennifer Parry |
| 10:45 – 11 a.m. | Bringing Science Fiction to Life: How Medical Suspended Animation Crosses from the Page to Practice<br>Mary Root |
| 11 – 11:15 a.m. | Bodies and Souls Laid Bare: Gaze, Intimacy, and Worlds of Desire within Slash Fanfiction<br>Erin Young |
| 11:15 – 11:30 a.m. | Reified Motherhood: Conceptions of Motherhood in Indian and Czech Nationalisms<br>Margaret Figliolino |
| 11:30 – 11:45 a.m. | Fashion and Feminism: The Role of Dress in the Campaign for Women's Suffrage<br>Erin Curry |
| 11:45 – Noon | Gossip and Propriety in Regency England<br>Lily Buchholz |
| Noon – 12:15 p.m. | The Fading Wonder of the World: An Exploration of the Magical, Wild Forest in Katherine Arden's *The Bear and the Nightingale*<br>Stephanie Duscher |

**12:15 – 1:15 p.m.** **Lunch**

| | |
|---|---|
| 12:30 – 1:15 p.m. | Human Herpes Simplex Virus-1 Infection Promotes the Alternative Splicing of Tau, a Key Factor in Alzheimer's Disease Progression – a Case for the Virus Being a Causative Agent<br>Guest Speaker Eain Murphy, Ph.D.<br>Associate Professor, SUNY Upstate Medical University |

## 1:15 – 3:15 p.m. Afternoon Undergraduate Presentation Session

1:15-1:30 p.m. Computational Analysis of the Effects of Gene Clustering Across Functionally Related Gene Families in the Budding Yeast, *Saccharomyces cerevisiae*
Mary Chidester
Chris Bui

1:30 – 1:45 p.m. Using Isopods to Compost Organic Waste
Nicolas Fallone

1:45 – 2 p.m. Le Moyne Woods is an Important Urban Refuge for Breeding Birds in Syracuse
Timothy Baker, Lucia Ruspantini and Hanna Oestrich

2 – 2:15 p.m. Egyptian Christianity: The Coptic Church in the Northeastern U.S.
Maria LaFleur

2:15 – 2:30 p.m. Argentina from 1976-1983: How the Videla Regime Changed Everything
Austen Canal

2:30 – 2:45 p.m. Synthesis of Alkylated Carbocyclic Curcuminoids
Sadie Davis

2:45 – 3 p.m. Synthesis of Di-aryl Thioureas and Guanidine
Zoe Genant

3 – 3:15 p.m. Preliminary Identification of VR Acceptability/Usability on Wellness for College Students
Irwing Vielma
Amina Kasumovic

## 3:15 – 4:15 p.m. Graduate Presentation Session

3:15 – 3:30 p.m. Data Governance Framework Incorporating Generative AI For Small and Medium Sized Smart Cities
Grace Thomas

3:30 – 3:45 p.m. Leveraging Current Data in Oil Spill Response
James McGarvey

3:45 – 4 p.m. Consensual Non-Monogamy in Psychotherapy: An Assessment of Clinician Competency in the Central New York Region
Ashley Hammerich

4 – 4:15 p.m. Exploring Psychedelic-Assisted Therapy: A Journey into Mind and Medicine
Dave Dunn

## 4:30 – 6 p.m. Poster Session and Closing Reception
(Beer and wine, hors d'oeuvres)

Characterization of SMUG 1 Activity in Base Excision Repair
Nolan Van Scoter

Functional Clustering of Metabolically Related Genes Is Conserved across Dikarya
Harpreet Purewal, Johnny Andrews and Gina Cittadino

Systematic Screening of Mitochondrial Mutants for Neighboring Gene Effect in the Budding Yeast, *Saccharomyces cerevisiae*
Michael Dotto and Vanessa Newbauer

Plasmid Retention in *Saccharomyces cerevisiae*
Abigale Egger

Evaluating the Genetic Diversity of *Valvata tricarinata* Through Use of Microsatellite DNA Sequences
Caryn Zimmerman

Impact of Changing CUL4 Variant on the Timing of Human Immunodeficiency Virus-Hijacked CRL4 Ubiquitin Ligase Functions
Mary Root

Creation of UBE2Q1 Deleted/Depleted Human Cell Lines to Characterize HIV Viral Protein Functions
Ashley Dobransky

Verification of CRISPR Cas-9 Gene Editing Through Genomic DNA Analysis
Katya Abdulky and Matty Marcum

Elucidating the Role of Hsc70 During Reovirus Infection and its Implications for Oncolytic Activity
Navroop Kaur and Cyril Anderson

Strategies for Increasing Speed in Terrestrially Moving Fish
Joseph Leonti

Investigating the Impact of Substrate and Size on Terrestrial Locomotion of Juvenile Tidepool Sculpin, *Oligocottus maculosus*
Lindsey Dobbs

Recycling Awareness on a College Campus: The Impact of Recycling Perception and Systems
Rianna Hampton and Hanna Oestrich

Prevalence of PFAS in the Syracuse, N.Y. Drinking Water: Public Awareness Measures
Daniela Santacruz

Modified Synthesis of the Ligand Bis(2-(3,5-dimethyl-1-pyrazolyl)ethyl)amine for Formation of Alkaline Earth-Metal Complexes
Evan Buckwalter and Jennifer Parry

Le Moyne Students Cybersecurity Guide
Yusef Amer, Cassidy Burns and Labib Alam

Exploring Feline Footprints with CatTracker: The Analysis of Community Dynamics and Distribution of Invasive Feline Cats in Syracuse, NY
Andrew Chojnowski

Fatherhood in Early Modern America: The Sewards of Auburn, N.Y.
Maria LaFleur

Comparing Antidepressants to Exercise
Anastasia LaFlair

Optimizing Learning Spaces: Cost Analysis of Implementing Outdoor Classrooms Versus Tents at Le Moyne
Aidan Shea and Robbie Blay

Faculty Approaches to Teaching in a Post COVID-19 World
Olivia McKenna

The Impact of Task Format on Reading Comprehension in College Students With and Without ADHD
April Wright and Ryan Waldruff

The Impact of Leadership on Teacher Retention
Amy Mahunik

Transformative Leadership: Mitigating Toxic Work Environments for Enhanced Employee Well-Being
Michelle Courtney Berry

How Does Attention Deficit Hyperactivity Disorder (ADHD) Impact the Academic and Social Experiences of College Students?
Chelsea Spears

The Use of the General System Questionnaire-30 (GSQ-30) in Lyme Disease: The Reduction of Symptom Burden
Kathleen Hergert

Occupational Justice Unveiled: Navigating the Challenges in Palestinian Families Amidst Crisis
Morgan Hiltbrand

Assistive Technology: Sensory Bracelet
Anna Salamino, Alexis Tartaglia and Morgan Hiltbrand

How College Athletics Can Provide Support for the Mental Health of Varsity Student Athletes with the Use of Mindfulness Intervention
Jane Howes, Jack Howes, Amy Melendez, Jack Mulvihill, Zach Revette, and Meredith Wagner

Effects of Endocrine Disrupting Chemicals on Female Fertility
Jordyn Washington and Livia Annese

# Abstracts, Faculty Mentors, and Biographies:
## Student Scholars Oral and Poster Presentations

8:30 – 8:45 a.m.

### Syracuse, N.Y.: A Case Study in Urban Green Space and Social Justice

Joshua Caldwell, Environmental Science Systems

Faculty Mentor: Jason Luscier, Ph.D.

**Abstract:** The city of Syracuse, New York, was redlined in 1937, consequentially leading to systematic inequality. The data shows that formerly redlined neighborhoods in the present day lack the level of green space that other neighborhoods have in Syracuse. This is problematic due to the benefits of green space for ecological and human health.

**Bio:** Joshua Caldwell is a senior environmental science systems major. After graduation, he plans to be employed by the Department of Environmental Conservation.

8:45 – 9 a.m.

### Adolescent Trauma's Impact on the Sympathetic Nervous System and Stress Response into Adulthood

Preston Taylor, Biological Sciences

Faculty Mentor: Patrick Yurco, Ph.D.

**Abstract:** This integral honors thesis delves into the intricate interplay between adolescent trauma, sympathetic nervous system (SNS) development, and subsequent stress responses. Through biopsychological inquiry, it investigates how traumatic incidents during adolescence shape individuals' SNS, influencing their manifestation of stress responses later in life. Examining epigenetic mechanisms, SNS function, and trauma's impact, the research explains how these factors intertwine to determine whether individuals exhibit fight, flight, freeze or fawn responses to stress. Additionally, it explores tailored treatments addressing each response, offering insights into the complexity and individuality of stress responses.

**Bio:** Preston Taylor is a senior biological sciences major who plans on attending medical school following a gap year after graduating this semester. With dreams of becoming either an orthopedic doctor or pediatrician, Preston sends his gratitude to Dr. Matthew Fee, Dr. Patrick Yurco, Dr. Shawn Ward and all other professors who have impacted him, as well as his lacrosse teammates at Le Moyne.

9 – 9:15 a.m.

## Music Therapy and its Effective Use in Complementary Care Programs for Oncology Patients

Mary Chidester, Biological Sciences

Faculty Mentor: Edward Ruchalski, MM

**Abstract:** Music therapy has been used in Western medicine for generations and for countless reasons, including to help and assist cancer patients. Because of the immense magnitude of a cancer diagnosis and the hardships associated with its treatments, many patients also experience depression, anxiety, fear, and other mental health problems. Music therapy, when made accessible, can be used in oncology to effectively support cancer patients while they undergo cancer treatments and fight the disease.

**Bio:** Mary Chidester is a senior biological sciences major with minors in chemistry, Latin and music. After graduation, Mary intends to work in research before continuing her education in a graduate program. Mary would like to thank Professor Edward Ruchalski, Dr. Chad Corcoran and Dr. Matthew Fee for their immense assistance and unwavering support throughout the Integral Honors thesis process; she would also like to thank her parents and siblings for all their help throughout this project and throughout her college education.

9:15 – 9:30 a.m.

## An Analysis of Current Research on Molar Incisor Hypomineralization: Exploring Risk Factors, Disease Implications, and Treatment Options

Emily O'Reilly, Biological Sciences

Faculty Mentor: Emily Ledgerwood, Ph.D.

**Abstract:** Molar Incisor Hypomineralization (MIH) is an oral health condition causing soft enamel, leading to tooth decay, sensitivity and altered appearance. MIH results from abnormal enamel development; however, etiological factors remain unknown. Enamel phenotypic abnormalities have severe implications for mental health and may contribute to oral health inequalities. An analysis of the literature on risk factors, implications for physical and mental health, and treatment options was performed to develop current diagnostic and treatment recommendations for clinicians.

**Bio:** Emily O'Reilly is a senior biological sciences major with minors in chemistry and music. She would like to thank Dr. Ledgerwood, Dr. Scharoun and Dr. Fee for all their help and support throughout the thesis process. In the fall, Emily will be attending Stony Brook School of Dental Medicine to become a general dentist.

9:30 – 9:45 a.m.

## IVF and Food Allergies: Exploring Potential Biological and Social Connections

Joseph Pastore, Biological Sciences

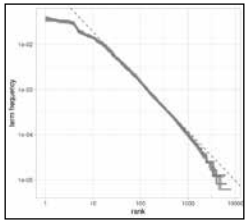
Faculty Mentor: Chad Corcoran, Ph.D.

**Abstract:** Inspired by personal experience and the rising occurrences of in vitro fertilization (IVF) births and food allergies in the US, this Integral Honors thesis investigates the potential origins of the heightened susceptibility of IVF children to food allergies. Biomedically, it examines the IVF process, epigenetics and the microbial exposure hypothesis. Socially, using Bronfenbrenner's Ecological Systems Theory, it analyzes social factors surrounding food allergy development and perception, thoroughly exploring the phenomenon.

**Bio:** Joseph Pastore, a Le Moyne Integral Honors Program member, is a senior biological sciences major with minors in chemistry and statistics. Joseph will attend the Jacobs School of Medicine And Biomedical Sciences in the fall. He would like to give a special thanks to the honors program director, Dr. Matthew Fee, his thesis advisor, Dr. Chad Corcoran, his thesis reader, Dr. Monica Sylvia, and everyone else who helped throughout the thesis process.

9:45 – 10 a.m.

## Zipf's Law Revisited: Shades of Grey in Research Misconduct



Victoria Sgarlata, Mathematics

Faculty Mentor: Caitlin Cunningham, Ph.D.

**Abstract:** Scientific integrity hinges on trust, yet studies reveal that scientific misconduct is not as rare as one may assume. This project scrutinizes Zipf's law, a famous mathematical relationship used to model data in complex systems including language, economics and more. Analyzing George Kingsley Zipf's methodologies and subsequent applications, I unveil a pattern of subtle yet unethical data manipulations. Through case studies of research misconduct, including those of Brian Wansink and Jan Hendrik Schön, I highlight the nuanced nature of and motivations behind dishonest research practices. This study advocates for a critical reassessment of Zipf's law while acknowledging its potential value in modeling.

**Bio:** Victoria Sgarlata is an undergraduate mathematics major with a concentration in statistics. Victoria plans to continue her education at Le Moyne College through the Master of Science in Teaching program.

10 – 10:15 a.m.

## Combatting Stability and Sustainability Issues Within Perovksite Solar Cells Using Recycled Polymers

Evan Buckwalter, Chemistry

Faculty Mentor: Tennyson Doane, Ph.D.

**Abstract:** Perovskite based solar cells could provide an avenue for cheap, sustainable and easy to produce solar energy; however, their low stability under ambient conditions have kept them from being commercially viable. By examining the properties of recycled single-use plastics as encapsulating materials it is possible to determine a path for other researchers to examine in an attempt to make these solar cells a reality.

**Bio:** Evan Buckwalter is a senior chemistry major planning to pursue a doctorate in chemical engineering after he graduates this May. Evan like to thank Dr. Matthew Fee and the faculty in Le Moyne's chemistry department for supporting his academic endeavors and providing opportunity to explore his scientific interests.

10:15 –10:30 a.m.

## Turmeric, Tradition, and the Novel Synthesis of Alkylated Carbocyclic Curcuminoids

Sadie Davis, Chemistry

Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** Curcumin is a natural β-diketone product of turmeric extracted from the plant *Curcuma longa L.* This interdisciplinary project focuses on the evolution of the spice turmeric, from its involvement in ancient Indian cultures to its emergence in Ayurvedic and eventually modern medicine with increased research on curcuminoids. This project introduces the novel synthesis of alkylated carbocyclic curcuminoids, while simultaneously aiming to bridge the gap between natural products' deep-rooted traditions and their current medicinal applications.

**Bio:** Sadie Davis is a senior chemistry major and member of the Integral Honors Program. Sadie has been completing an organic research project over the past two years as part of the Clare Boothe Luce Research Scholar Program. In the fall, she will be pursuing a doctoral program in chemistry in preparation for a career in synthetic or medicinal research or joining the undergraduate professoriate. Sadie would like to thank Dr. Joseph Mullins, Dr. Darryl Caterine, and Dr. Matthew Fee for their endless support and guidance throughout the thesis process.

10:30 –10:45 a.m.

## Post-Mortem Metabolic Contamination and the State of Forensic Science in the United States

Jennifer Parry, Biochemistry

Faculty Mentor: Theresa Beaty, Ph.D.

**Abstract:** An exploration of one of the most reliable forensic science techniques and how ethanol readings after death can be influenced by microbial activity. This will lead to an explanation of the complex systems in place for medicolegal death investigations in the United States and the importance of ensuring that forensic science evidence is rooted in a strong scientific background.

**Bio:** Jennifer Parry is a senior biochemistry student who will be graduating this spring. Next year Jennifer will be attending Syracuse University to finish her master's degree in biomedical forensic science. After that, in a move that surprises absolutely no one, she will be pursuing a career in forensic science.

10:45 –11 a.m.

## Bringing Science Fiction to Life: How Medical Suspended Animation Crosses from the Page to Practice

Mary Root, Biochemistry

Faculty Mentor: Theresa Beaty, Ph.D.

**Abstract:** The majority of patients who sustain trauma wounds bleed out from treatable injuries before they can reach a hospital. Medical suspended animation was created to address this issue. Reminiscent of the science fiction concept, medical suspended animation lowers a patient's metabolism to effectively pause the patient's life until they can receive treatment. This thesis explores the two main methods for inducing a state of suspended animation to reveal how close science fiction is to reality.

**Bio:** Mary Root is a senior biochemistry major who is part of the Integral Honors program. After graduation, Mary plans on working as a biology research technician before pursuing a doctorate with the goal of becoming a research scientist. Mary would like to thank Dr. Theresa Beaty, Ph.D., Dr. Norrell Edwards and Dr. Matthew Fee for their help in completing her thesis.

11 – 11:15 a.m.

## Bodies and Souls Laid Bare: Gaze, Intimacy, and Worlds of Desire within Slash Fanfiction

Erin Young, Criminology

Faculty Mentor: Ludger Viefhues-Bailey, Ph.D.

**Abstract:** Through an in-depth study of prose and word choice, this thesis examines the use of gaze and intimacy within slash fanfiction to create worlds of desire exclusive to the genre. By analyzing the chosen works of Harry Potter and All For the Game slash fanfiction, the project speculates on the appeal of such media and the power of fan-generated content in the development of desire.

**Bio:** Erin Young is a senior criminology major and psychology minor in the Integral Honors Program. Erin's future plans are unclear, though she hopes to work in the publishing industry one day. She would like to thank her parents, her friends, Dr. Ludger Viefhues-Bailey, Dr. Michael Davis and Dr. Matthew Fee for their continued support and encouragement.

11:15 –11:30 a.m.

## Reified Motherhood: Conceptions of Motherhood in Indian and Czech Nationalisms

Margaret Figliolino, Political Science

Faculty Mentor: Delia Popescu, Ph.D.

**Abstract:** This thesis will examine images of motherhood deployed by nationalist movements in India and Czechia. Through analyzing these images, this thesis will also highlight the gendered aspects of both the theory and practice of nationalism and how political conceptions of motherhood are often constructed with the intent of keeping women at the moral center of society but on the fringes of public life.

**Bio:** Margaret Figliolino is a senior political science major and a student in the Integral Honors Program. After graduation, Margaret hopes to continue her studies through pursuing a doctorate in political science. She wishes to thank Dr. Delia Popescu, Dr. Douja Mamelouk, Dr. Anirban Acharya and Dr. Fee for being so understanding and helpful throughout the thesis process and her family and friends for their support.

11:30 – 11:45 a.m.

## Fashion and Feminism: The Role of Dress in the Campaign for Women's Suffrage

Erin Curry, History

Faculty Mentor: Leigh Fought, Ph.D.

**Abstract:** This thesis is an exploration of the evolution of women's fashions, specifically the fashionable silhouette, in the United States during the late 19th and early 20th centuries. This examination of women's fashions culminates in an analysis of the National Woman's Party's visual-rhetoric heavy campaign for suffrage and how fashion and the silhouette played a role in their movement, incorporating ideas involving the construction of gender and the definition of femininity.

**Bio:** Erin Curry is a senior history major planning on attending graduate school in the future for library sciences. She would like to thank Dr. Leah Fought, Dr. Matthew Fee and Professor Lindsey Voorhees for their assistance and support throughout this project.

11:45 – noon

## Gossip and Propriety in Regency England

Lily Buchholz, History

Faculty Mentor: Kathleen Costello-Sullivan, Ph.D.

**Abstract:** Jane Austen's novel *Pride and Prejudice* (1813) uses its unique historical position to provide a nuanced portrayal of gossip. Austen uses this portrayal of gossip to comment on women's place in Regency society. This subtler commentary contrasts with those written by earlier female writers like Mary Wollstonecraft making it more palatable to her more conservative and reactionary Regency audience.

**Bio:** Lily Buchholz is a senior history major in the Integral Honors Program. She would like to thank Dr. Kate Costello-Sullivan, Dr. Holly Rine and Dr. Matthew Fee for all their help on her thesis. Lily will be spending her next year in California through the St. Joseph Worker Program helping those in need.

Noon – 12:15 p.m.

## The Fading Wonder of the World: An Exploration of the Magical, Wild Forest in Katherine Arden's *The Bear and the Nightingale*

Stephanie Duscher, English

Faculty Mentor: Erin Mullally, Ph.D.

**Abstract:** This thesis examines how historical fantasy literature can positively shape one's perception of the natural environment, specifically the forest. Through an examination of Katherine Arden's 2017 novel, *The Bear and the Nightingale*, in tandem with environmental ethics, such as Aldo Leopold's land ethic and concepts of nonhuman personhood, this thesis ultimately explores how narrative can encourage readers to respect the natural world as a sentient entity, rather than a utility to be depleted.

**Bio:** Stephanie Duscher is a senior English major in the Integral Honors Program. After graduating this May, Stephnie will be pursuing a year of service with the Jesuit Volunteer Program Northwest. She would like to thank her mentor, Dr. Erin Mullally, her reader, Dr. Jason Luscier, and the program director, Dr. Fee, for all of their help and support in developing her thesis.

12:30 – 1:15 p.m.

## Human Herpes Simplex Virus-1 Infection Promotes the Alternative Splicing of Tau, a Key Factor in Alzheimer's Disease Progression – a Case for the Virus Being a Causative Agent

Guest Speaker Eain Murphy, Ph.D.
Associate Professor, Microbiology and Immunology
SUNY-Upstate Medical University

**Abstract:** Familial linked Alzheimer's Disease (AD) accounts for a small percentage of current cases, with the remaining caused by unknown etiologies. Independent of causation, AD is defined by three common characteristics: inflammation, extracellular beta-amyloid aggregation, and intracellular Tau accumulation. Human herpes simplex virus 1 (HSV-1), a neurotropic virus found in ~50% of the population, was recently linked to AD progression in clinical samples and animal models. HSV-1 infections induce inflammation and extracellular beta-amyloid aggregation, but a role for viral-mediated Tau accumulation has not been defined. In healthy brains, alternative splicing of MAPT, the gene encoding Tau, results in equimolar ratios of 3R and 4R isoforms of Tau protein. However, in AD tissues, unequal ratios of either 3R or 4R results in Tau microtubule disassociation, hyperphosphorylation and aggregation. Host factors that regulate MAPT alternative splicing include SRPK1. Interestingly, HSV-1 encodes a protein, ICP27, that impedes the SRPK1 functions. To this end we discovered that *HSV-1 infections alter M APT neuronal splicing resulting in altered 3R/4R Tau ratios in an ICP27 dependent fashion* thus providing evidence that HSV-1 infections may be a significant contributor to the progression of AD.

**Bio:** Dr. Eain Murphy, a New York native, earned his bachelor's degree at Grinnell College, followed by a doctorate in molecular biology at the University of Iowa studying various aspects of human herpesvirus infections. From there Dr. Murphy completed postdoctoral fellowships at Columbia University and Princeton University. During these training years he built a research program investigating how infected cells limit viral growth and how viruses ultimately undermine these antiviral responses. From Princeton, Dr. Murphy built his own laboratory and research program at the Cleveland Clinic where he continued his investigations on viral pathogenesis. After seven years in an academic setting, Dr. Murphy was recruited to be the head of biology for a small pharmaceutical company developing novel therapeutics that combat viral infections. After successfully building up the company, he decided to return to academia. Dr. Murphy is currently a tenured associate professor in the microbiology and immunology department at SUNY-Upstate Medical University in Syracuse.

1:15-1:30 p.m.

## Computational Analysis of the Effects of Gene Clustering Across Functionally Related Gene Families in the Budding Yeast, *Saccharomyces cerevisiae*

Mary Chidester, Biological Sciences
Chris Bui, Biological Sciences

Faculty Mentor: James Arnone, Ph.D.

**Abstract:** The budding yeast *Saccharomyces cerevisiae* is used to study gene regulation – including spatial positioning of genes along a chromosome. We have characterized the prevalence and significance of functional clustering in coordinating transcription within coregulated gene families. Our research has focused on the role of clustering in transcriptional regulation as part of the cell's environmental stress response.

**Bios:** Mary Chidster is a senior biological sciences major in the Integral Honors Program with minors in chemistry, music and Latin. After graduation in May, Mary intends to work in research before continuing her education in a graduate program. Mary would like to thank Dr. James Arnone for his mentorship on this project and the Student Research Committee for its financial support.

Chris Bui is graduating in the spring, majoring in biological sciences with minors in psychology, applied statistics and chemistry. Chris is planning on attending medical school. He would like to thank Dr. Arnone and the biology department for all their support.

1:30 – 1:45 p.m.

## Using Isopods to Compost Organic Waste

Nicolas Fallone, Biological Sciences

Faculty Mentor: Blair Page, Ph.D.

**Abstract:** As the human population continues to grow, so does the organic waste we produce. The FDA estimates that 30-40 percent of food in the United States is wasted. Much of the food waste is landfilled which leads to the production of methane, a potent greenhouse gas, worsening climate change and hindering future food production. This study evaluates the use of isopods and red worms to compost food, papers, and bioplastics for small and mid-scale composting.

**Bio:** Nicolas Fallone is a senior biological sciences major with minors in chemistry and environmental science systems. After his graduation in May, Nicolas will attend medical school with the goal of working in pathology. He would like to thank Dr. Blair Page for his passion and guidance throughout this project. He would also like to thank Ms. Danine Meka and the Le Moyne dining hall staff for all of their help in providing food waste for the project, and the Student Research Committee for funding this work.

1:45 – 2 p.m.

## Le Moyne Woods is an Important Urban Refuge for Breeding Birds in Syracuse

Timothy Baker, Environmental Science Systems
Lucia Ruspantini, Environmental Science Systems
Hanna Oestrich, Environmental Science Systems

Faculty Mentors: Jason Luscier, Ph.D., and Donald McCrimmon Jr., Ph.D.

**Abstract:** The Le Moyne Woods (LMW) is a forest fragment within an urban landscape mosaic. We analyzed breeding bird species diversity during four seasons from LMW to comparable data in nine Syracuse city parks. Following the insights of Wilson and MacArthur (1967) and the methods of Marzluff (2005) we compare species richness of native and urban adapted species. We make recommendations for enhancing bird species diversity in urban biological communities.

**Bios:** Timothy Baker is a senior environmental science systems student with a concentration in pre-engineering and minors in mathematics and biological sciences. After graduation, Timothy plans to attend Syracuse University to pursue a master's degree in environmental engineering. Timothy thanks Dr. Jason Luscier and Dr. Donald McCrimmon Jr. for their expertise, mentorship, and support.

Hanna Oestrich is a senior environmental science systems major with minors in biological sciences and environmental studies. After graduation Hanna plans on entering graduate school and obtaining a master's degree. Hanna would like to thank Dr. Donald McCrimmon Jr. and Dr. Jason Luscier for their lead, support and mentorship of this project.

Lucia Ruspantini is a junior majoring in environmental science systems with a concentration in pre-engineering with a minor in dance. After graduating, Lucia plans to pursue a master's degree in environmental engineering at Syracuse University. Lucia wants to thank Dr. Jason Luscier and Dr. Donald McCrimmon Jr. for their mentorship and guidance in this project.

2 – 2:15 p.m.

## Egyptian Christianity: The Coptic Church in the Northeastern U.S.

Maria LaFleur, History and Anthropology

Faculty Mentor: Deborah Tooker, Ph.D.

**Abstract:** This project explores several topics relating to the Coptic sect of Christianity including its history, major belief system, and global influences among a community of actively practicing Coptic Egyptians. It includes an examination of oral versus written history, defines cultural ideals of race and ethnicity, analyzes the Middle Eastern cultural influences on Christianity, and explores how a community of Coptic Egyptians have adapted to life in America.

**Bio:** Greatly inspired by the ethnographic experience of her project, Maria LaFleur plans to pursue graduate study in the field of anthropology. Maria hopes to pursue a career in government-focused peace delegations, focusing on the relationship between the United States and the Middle East. She believes this project, focusing on Christian Egyptians within American society, is a foundational place to start building this relationship.

2:15 – 2:30 p.m.

## Argentina from 1976-1983: How the Videla Regime Changed Everything

Austen Canal, Political Science

Faculty Mentor: Yunus Sozen, Ph.D.

**Abstract:** In this presentation I will be discussing the regime which took place in Argentina under Jorge Rafael Videla beginning in 1976. I will be using political analysis as well as historical information beginning from the Perón presidency to properly contextualize and explain what occurred and why it happened under the Videla Regime.

**Bio:** Austen Canal is a senior political science major here at Le Moyne College with a focus on international relations and comparative politics. In addition to political science, Austen studies philosophy and performs with the Jazzuits. He is a member of the SAMMY-nominated vocal jazz quartet, Salt City Voices. Austen has been blessed by God to have such a supportive education and family to back him. Austen has decided to continue his studies and was recently accepted to the number one school in America for his field, the Maxwell School of Citizenship and Public Affairs at Syracuse University.

2:30 – 2:45 p.m.

## Synthesis of Alkylated Carbocyclic Curcuminoids

Sadie Davis, Chemistry

Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** Curcumin is a natural β-diketone product of turmeric extracted from the plant *Curcuma longa L.* Curcumin and its synthetic derivatives possess a variety of medicinal properties, including antioxidant, anti-inflammatory, and anti-cancer activity. The goal of the project is to prepare novel alkylated derivatives of curcumin that contain a carbocyclic moiety. After successfully synthesizing a catalog of 4,4-dialkyl curcuminoid compounds, the project now focuses on improving the stereoselectivity of the reaction via palladium-catalyzed asymmetric allylation.

**Bio:** Sadie Davis is a senior chemistry major and member of the Integral Honors Program working on organic research as part of the Clare Boothe Luce Research Scholar Program. In the fall, Sadie will be pursuing a doctoral program in chemistry in preparation for a career in synthetic or medicinal research or joining the undergraduate professoriate.

2:45 – 3 p.m.

## Synthesis of Di-aryl Thioureas and Guanidine

Zoe Genant, Chemistry

Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** This research covers a two-year synthetic project consisting of the synthesis of diaromatic thioureas and their guanidine analogues as possible central nervous system (CNS) active drugs. Over the course of the research various methods for obtaining the target compounds were explored as well as some kinetic studies of the reaction to produce the thioureas.

**Bio:** Zoe Genant is considering a possible gap year but does plan to attend graduate school to pursue a doctorate in chemistry or possibly chemical engineering. Zoe appreciates the opportunity she has been given to do research at Le Moyne College through the Clare Boothe Luce Scholars Research Program and the excellent mentorship of Dr. Joseph Mullins along the way.

3 – 3:15 p.m.

## Preliminary Identification of VR Acceptability/ Usability on Wellness for College Students

Irwing Vielma, Computer Science
Amina Kasumovic, Biological Sciences

Faculty Mentors: Martha Grabowski, Ph.D.,
and Whitney Wood, Ph.D.

**Abstract:** This quantitative study investigates the acceptability and usability of virtual reality (VR) as a method for mindfulness interventions to reduce stress and anxiety in college students. Incorporating the Technology Acceptance Model (TAM), we evaluate perceptions of VR's ease of use and usefulness alongside comparing a VR-delivered versus audio-only mindfulness exercise on anxiety and stress reduction. Through this comparative analysis, the research aims to describe VR's efficacy and suitability within higher education settings to inform the ethical development and responsible implementation of immersive technologies addressing student mental health needs.

**Bios:** Irwing Vielma is a McDevitt Information Systems Research Fellow and a senior computer science major, with a minor in psychology. Irwing completed two National Science Foundation Research Experiences for Undergraduates fellowships at Clarkson University and one at the State University of New York at Albany and served as an intern at SUNY Upstate's Autonomous Systems Group in Syracuse. In the spring of 2024, he received a Master's and Doctoral Fellowship from the Department of Homeland Security's Arctic Domain Awareness Center at the University of Alaska Anchorage to undertake strategic Arctic research for his graduate work.

Amina Kasumovic is a first-generation college student pursuing a biological sciences major with a psychology minor. Amina currently serves as a Student Community Outreach Engagement fellow. Passionate about education, she actively contributes to the academic growth of high school students in diverse schools within the Syracuse City School District through tutoring initiatives. She aspires to embark on a future in medicine where she envisions making a meaningful impact through research and clinical practice.

The authors thank Dr. Martha Grabowski, Dr. Whitney Wood, Dr. Emily Ledgerwood, Ms. Emily Lawless and the McDevitt Foundation for their support. The research team would like to recognize the Student Research Committee at Le Moyne College for finding their work. Lastly, the research team had the pleasure of collaborating with many professors who generously offered extra credit and assisted in participant recruitment, significantly enhancing the success of the research.

3:15 – 3:30 p.m.

## Data Governance Framework Incorporating Generative AI For Small and Medium Sized Smart Cities

Grace Thomas, Master of Science in Information Systems

Faculty Mentor: Martha Grabowski, Ph.D.

**Abstract:** This research focuses on data governance frameworks incorporating generative artificial intelligence for small to medium size "smart cities." Data governance frameworks provide rules, definitions and guidance for the use, storage, maintenance, protection, dissemination and integration of data, including the use of artificial intelligence, in municipal government. This research is the result of an internship that was focused on creating such a data governance framework for the City of Syracuse, a model "smart city." The Data Governance Policy can be used to decide how citizens' data can be protected, shared, stored and utilized, as well as how generative AI tools and products could and should be used in the City of Syracuse's municipal datasets.

**Bio:** Grace Thomas is a senior finance and information systems major who is continuing her academic career in the master's degree program in information systems. The research being presented is part of Grace's master's thesis. Grace is currently an intern in the City of Syracuse's Office of Analytics, Performance and Innovation, where she is working in data governance. In her spare time, she likes spending time with friends and family. Grace would like to thank Dr. Martha Grabowski, the McDevitt Information Systems Research Program, the City of Syracuse's Office of Analytics, Performance, and Innovation, and everyone who has supported this research.

3:30 – 3:45 p.m.

## Leveraging Current Data in Oil Spill Response

James McGarvey, Master of Science in Information Systems

Faculty Mentor: Martha Grabowski, Ph.D.

**Abstract:** This project explores the use of real-time data in oil spill response, specifically worst-case discharge analysis. The focus for this research is determining the adequacy of oil spill protection requirements that govern oil shipping companies in the U.S. Arctic and Western Alaska.

**Bio:** James McGarvey is a senior majoring in information systems in business analytics. Following his graduation, James will pursue a master's degree in information systems at Le Moyne. He served as an intern at SUNY Upstate's Autonomous Systems Group in Syracuse. In the spring of 2024, he received a Master's and Doctoral Fellowship from the Department of Homeland Security's Arctic Domain Awareness Center at the University of Alaska Anchorage to undertake strategic Arctic research for his graduate work. He would like to thank Dr. Martha Grabowski for the guidance and mentoring throughout his research.

3:45 – 4 p.m.

## Consensual Non-Monogamy in Psychotherapy: An Assessment of Clinician Competency in the Central New York Region

Ashley Hammerich, Master of Science in Clinical Mental Health Counseling

Faculty Mentors: Erica Lacey, LCSW, LMFT, and Christina Bobesky, Ph.D.

**Abstract:** One in five Americans reports participating in Consensual Non-Monogamy (CNM), and addressing their specific relationship challenges and mental health needs is essential. The literature on CNM and psychotherapy demonstrates a lack of informed and competent professionals providing mental health services to this population. This study will collect data on the availability of competent professionals, based on awareness, education, training, and bias, providing CNM clients with mental health services specific to their needs. The research expects to inform that the Central New York region lacks clinician competency in psychotherapy services for Consensually Non-Monogamous clients.

**Bio:** Ashley Hammerich will graduate from Le Moyne in May with an master's degree in clinical mental health counseling. As a clinical intern at CNY Mental Health Counseling (CNYMHC), she serves teens and adults with anxiety, depression and trauma through individual, couples, group and family therapy. She is passionate about helping with relationships, life transitions, intimacy, sexuality, communication and conflict resolution. Ashley will continue working at CNYMHC post-graduation and become a licensed mental health counselor.

4 – 4:15 p.m.

## Exploring Psychedelic-Assisted Therapy: A Journey into Mind and Medicine

Dave Dunn, Master of Science in
Clinical Mental Health Counseling

Faculty Mentor: Mary Handley, Ph.D., LMHC, CRC

**Abstract:** Psychedelics, including ketamine, psilocybin and MDMA, and psychedelic-assisted therapy are widely becoming accepted as powerful new mental health treatments. This talk will explore the history of psychedelics, the science behind why they work, the current legal and regulatory landscape, and why so many people on the cutting edge of research into a multitude of mental health issues are so excited about the potential psychedelics bring. Psychedelics have the potential to be helpful not just for individuals, but also for addressing some of the larger issues we face as a society.

**Bio:** Dave Dunn worked in upper management for small and medium sized companies for 25 years, most recently as the CEO of Webucator, a national training company headquartered in Upstate New York, from 2009 to 2022. Dave graduated from Hamilton College with a major in Comparative Religion in 1990 and received a Master of Business Administration from Syracuse University in 1997. He will graduate from Le Moyne College with his Master of Science in Clinical Mental Health Counseling in 2024. Dave has always been interested in mental health and he is particularly excited about the potential for healing that psychedelics and psychedelic-assisted therapy bring to the field.

4:45 – 6 p.m. Poster Session

## Characterization of SMUG 1 activity in Base Excision Repair

Nolan Van Scoter, Biochemistry

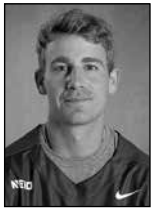
Faculty Mentor: Emily Harcourt, Ph.D.

**Abstract:** This research project delves into the active site of SMUG1, an enzyme involved in base excision repair of damaged DNA. Through computational modeling and biochemical assays, the study aims to discover the structural and functional characteristics of SMUG1's active site, shedding light on its substrate specificity and catalytic mechanism. Insights gathered from this project hold promise for enhancing our understanding of DNA repair processes.

**Bio:** Nolan Van Scoter is a junior biochemistry major at Le Moyne College. Next year, Nolan plans to continue working on the project along with Dr. Emily Harcourt until graduation.

## Functional Clustering of Metabolically Related Genes Is Conserved across Dikarya

Harpreet Purewal, Biochemistry
Johnny Andrews, Biological Sciences
Gina Cittadino, Biological Sciences



Faculty Mentor: James Arnone, Ph.D.

**Abstract:** Transcriptional regulation is vital for organismal survival, with many layers collaborating to balance gene expression. One layer is genome organization, specifically the clustering of functionally related, co-expressed genes along the chromosomes. This organization occurs extensively in *Ascomycota* fungi, but is less characterized within *Basidiomycota* fungi despite its applications. This review will provide insight into the prevalence, purpose, and significance of the clustering of functionally related genes across *Dikarya*, including studies from *Ascomycetes* and representative *Basidiomycete* species.

**Bios:** Harpreet Purewal is a member of the Integral Honors Program and will be graduating in 2025. He aims to become a dentist.

Johnny Andrews is a biological sciences major.

Gina Cittadino is a junior biological sciences major with minors in chemistry and dance. After graduating from Le Moyne, Gina plans on going to dental school to become a pediatric dentist.

## Systematic Screening of Mitochondrial Mutants for Neighboring Gene Effect in the Budding Yeast, *Saccharomyces cerevisiae*

Michael Dotto, Biological Sciences
Vanessa Newbauer, Biological Sciences

Faculty Mentor: James Arnone, Ph.D.

**Abstract:** Using the Yeast Deletion Collection, researchers have been testing for genomic interactions under different conditions using different mitochondrial mutants of *Saccharomyces cerevisiae*. PCP1 was the initial gene of interest as it possesses the known mitochondrial mutant, and it was tested using different nutrient environments to test its effects on growth. As the study grows, both proximal and distal genes are being tested in order to observe the same effects.

**Bios:** Michael Dotto is a senior biological sciences major. Upon graduating from Le Moyne College, Michael plans to attend a two-year medical imaging program at SUNY Upstate Medical University. Once completed, and gaining work experience, he plans to become a physician assistant.

Vanessa Newbauer is a senior biological sciences major. She has also presented her research at the Natural Science Seminar and the Niagara North East Conference. She aspires to pursue a masters, ultimately becoming a Physician's Assistant. She would like to thank her parents, Chris and Annalisa, as well as Dr. James Arnone for always being a great mentor and leader in her college career.

## Plasmid Retention in *Saccharomyces cerevisiae*

Abigale Egger, Biological Sciences

Faculty Mentor: James Arnone, Ph.D.

**Abstract:** This project investigates the impact of neighboring gene effects about the PAH1 locus. This is a gene necessary for plasmid retention in *Saccharomyces cerevisiae* and our goal is to explore more of the field regarding gene expression for this eukaryote. There is also analysis with respect to differing heat and chemical effects.

**Bio:** Abigale Egger's future plans include attending dental school and specializing in orthodontics. Abigale would like to thank her family and Dr. James Arnone for being there to support her ambitions.

## Evaluating the Genetic Diversity of *Valvata tricarinata* Through Use of Microsatellite DNA Sequences

Caryn Zimmerman, Biological Sciences

Faculty Mentor: Patrick Yurko, Ph.D.

**Abstract:** The freshwater snail *Valvata tricarinata* is an understudied species of snail in New York State. The goal of this study is to utilize sequences of DNA called microsatellites (MSATs) to evaluate the genetic diversity and evolutionary history of this snail species. Researching the genetic history of these snails can provide insight into the environmental health and history of New York State watersheds.

**Bio:** Caryn Zimmerman is a junior biological sciences major with a minor in chemistry interested in pursuing graduate work in forensic science or molecular biology research. Caryn would like to thank Dr. Patrick Yurco for guidance during research and all of her friends and family for supporting her.

## Impact of Changing CUL4 Variant on the Timing of Human Immunodeficiency Virus-Hijacked CRL4 Ubiquitin Ligase Functions

Mary Root, Biochemistry

Faculty Mentor: John Sharifi, Ph.D.

**Abstract:** HIV proteins hijack the cellular CRL4 ubiquitin ligase complex to cause the degradation of proteins that function as part of the cell's defense against HIV. The CRL4 ubiquitin ligase complex contains CUL4, which can be either type A or B. Preliminary data suggests that the type of CUL4 that is abundant may affect the timing of HIV protein functions. In this project, CRISPR-Cas9 gene editing technology was used to create knockout cell lines wherein CUL4A and CUL4B are completely absent. Ultimately, establishing these knockout cell lines will allow us to determine which of the two CUL4 types is more important for efficient HIV protein function. This knowledge may serve as the basis for the development of novel therapeutics.

**Bio:** Mary Root is a senior biochemistry major who is part of the Integral Honors Program. After graduation, Mary plans on working as a biology research technician before pursuing a doctorate with the goal of becoming a research scientist. Mary would like to thank Dr. John Sharifi for his continuous mentorship, guidance and support throughout the duration of this project.

## Creation of UBE2Q1 Deleted/Depleted Human Cell Lines to Characterize HIV Viral Protein Functions

Ashley Dobransky, Biological Sciences

Faculty Mentor: John Sharifi, Ph.D.

**Abstract:** HIV encodes viral proteins, Vpr and Vpx, that engage the cellular CRL4 ubiquitin ligase complex to target antiviral proteins for proteasomal destruction. CRL4 consists of proteins: DCAF1, DDB1, CUL4A or CUL4B, ROC, and an E2 enzyme. Unpublished data from immunoprecipitation assays found UBE2Q1, a particular type of E2 enzyme, interacts with HIV Vpr. The role of UBE2Q1 in HIV Vpr/x functions through the CRL4 ubiquitin ligase complex is not known. We hypothesize that UBE2Q1 is important for Vpr/x function through CRL4. To test this we are implementing CRISPR-Cas9 gene editing technology to delete the ube2q1 gene in target human cell lines. We additionally are implementing an alternative approach that utilizes RNA interference to reduce UBE2Q1 protein levels through mRNA depletion.

**Bio:** Ashley Dobransky is a senior biological sciences major with minors in chemistry and applied statistics. Apart from her studies, Ashley is a thrower on the Le Moyne track and field team. After graduating, she plans to explore her career options in the biology research field.

## Verification of CRISPR Cas-9 Gene Editing Through Genomic DNA Analysis

Katya Abdulky, Biological Sciences
Matty Marcum, Biological Sciences

Faculty Mentor: John Sharifi, Ph.D.

**Abstract:** HIV targets various immune cells in the body, ultimately leading to immune failure (AIDS). Using CRISPR Cas-9 gene editing technology we aimed to delete genes encoding cellular proteins we hypothesize affect HIV replication in model cell lines. This project aims to confirm gene disruption by purifying total genomic DNA from experimental and control cells, performing PCR to amplify the CRISPR Cas-9 cut site, and sending the amplified DNA product to be verified by sequencing.

**Bios:** Katya Abdulky is a senior biological sciences major interested in pursuing a career in dentistry. Katya would like to thank Dr. John Sharifi for guidance during her research and her friends and family for their support.

Matty Marcum is a senior biological sciences major and chemistry minor. She is pursuing a career as a physician assistant. Matty would like to thank Dr. Sharifi for guidance and support throughout this research and previous academic endeavors.

## Elucidating the Role of Hsc70 During Reovirus Infection and its Implications for Oncolytic Activity

Navroop Kaur, Biological Sciences
Cyril Anderson, Biological Sciences


Faculty Mentor: Emily Ledgerwood, Ph.D.

**Abstract:** Oncolytic viruses kill cancer cells and can be used in cancer therapy. Our lab studies mammalian orthoreovirus, an oncolytic virus that benefits from the host cell's stress response. In response to stress, the host chaperone protein Hsc70 supports protein synthesis and moves to viral replication sites. The chemical Hsc70 inhibitor VER-155008 will be used to examine how reovirus replicates in Hsc70's absence. Proper examination of the stress response could aid oncolytic studies.

Bios: Navroop Kaur is a junior biological sciences major interested in becoming a physician assistant and plans to specialize in women's health. Navroop would like to thank Dr. Emily Ledgerwood for this opportunity to learn more about the field of research and biology.

Cyril Anderson is a sophomore majoring in biological sciences and currently studying in the hopes of applying to medical school following his time at Le Moyne. He is from Manchester, N.H., and is on the Le Moyne track team. He primarily runs the 200 meter and throws the javelin.

## Strategies for Increasing Speed in Terrestrially Moving Fish

Joseph Leonti, Biological Sciences

Faculty Mentor: Cinnamon Pace, Ph.D.

**Abstract:** Amphibious fish are fish that can move on land, with some even using fins as a proxy for limbs. For these fish it is unknown how they increase their terrestrial velocity. Do they increase stride length, stride frequency, or both? We examined the relationship between these variables in terrestrial locomotor bouts of walking catfish and tidepool sculpin to examine how functional tradeoffs and evolutionary history interact.

***Bio:*** Joey Leonti is a senior majoring in biological sciences and minoring in psychology and chemistry. After graduating from Le Moyne, Joey plans to go to medical school with the aspiration of one day becoming a pediatric psychiatrist. Joey would like to thank all of his professors for supporting him through his three years at Le Moyne while giving a special thanks to Dr. Cinnamon Pace for allowing him an opportunity to study something about which he is truly passionate.

## Investigating the Impact of Substrate and Size on Terrestrial Locomotion of Juvenile Tidepool Sculpin, *Oligocottus maculosus*

Lindsey Dobbs, Biological Sciences

Faculty Mentor: Cinnamon Pace, Ph.D.

**Abstract:** *Oligocottus maculosus*, commonly known as the tidepool sculpin, is a small fish species found along the Pacific Coast of North America, ranging from the Bering Sea all the way to Southern California. The terrestrial locomotion of tidepool sculpin can be influenced by substrate composition and size. The main objective of this research is to investigate how these varying substrates and environments can affect the overall movement of *O. maculosus*.

**Bio:** Lindsey Dobbs is a senior biological sciences major with a minor in psychology. After graduating from Le Moyne in May of 2024, Lindsey plans to attend DPT school where she will earn her doctorate and pursue a career in physical therapy, focusing primarily on sports and orthopedics. She would like to thank Dr. Cinnamon Pace for her mentorship and for sharing her knowledge of anatomy and locomotion.

## Recycling Awareness on a College Campus: The Impact of Recycling Perception and Systems

Rianna Hampton, Biological Sciences
Hanna Oestrich, Environmental Science Systems

Faculty Mentor: Blair Page, Ph.D.

**Abstract:** Although Le Moyne College (LMC) is on a path toward sustainability, it is hard to fully gauge student involvement. There is an unprecedented rate of contamination within recycling systems. Students were surveyed to evaluate perception of campus recycling systems, practices, and awareness. The survey assessed if class year was a factor, what engages students to recycle, and opinions on LMC recycling infrastructure. Future recommendations will be made to ensure LMC progresses on a path toward sustainability through student action.

**Bio:** Rianna Hampton plans to graduate this May as a SCORE scholar with a bachelor's degree in biological sciences. Upon graduation Rianna plans to enter the workforce. Rianna would like to thank the SCORE team as well as Dr. Blair Page for supporting and guiding this research.

Hanna Oestrich is a senior environmental science systems major with minors in biological sciences and environmental studies. After graduation Hanna plans on entering graduate school and obtaining a master's degree. Hanna would like to thank Dr. Blair Page, Dr. Emily Ledgerwood, Dr. Yue Han and the SCORE committee.

## Prevalence of PFAS in the Syracuse, N.Y. Drinking Water: Public Awareness Measures

Daniela Santacruz, Biological Sciences

Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** Per-and polyfluoroalkyl substances (PFAS) are ubiquitous, organic pollutants. However, most people are unaware what PFAS are and that they are found in drinking water. Data obtained from the City of Syracuse Water Department, Onondaga County Water Association, and NYS Health Department was analyzed. Although records indicate that local levels of PFAS monitored are below the maximum limits imposed by the EPA, this research uncovers areas for improvement in both regional water quality and public awareness.

**Bio:** Daniela Santacruz is a senior biological sciences major with minors in chemistry and criminology. After graduating from Le Moyne, Daniela will attend Syracuse University to obtain a Master's in Biomedical Forensic Science. She appreciates the SCORE faculty and Dr. Joseph Mullins for their endless support during her research and throughout her years as an undergraduate student at Le Moyne College.

## Modified Synthesis of the Ligand Bis(2-(3,5-dimethyl-1-pyrazolyl) ethyl)amine for Formation of Alkaline Earth-Metal Complexes

Evan Buckwalter, Chemistry
Jennifer Parry, Biochemistry

Faculty Mentor: Anna O'Brien, Ph.D.

**Abstract:** The pincer ligand bis(2-(3,5-dimethyl-1-pyrazolyl)ethyl)amine is of interest for the formation of Alkaline Earth metal complexes, which are air- and moisture-sensitive. Literature syntheses of the pincer ligand do not characterize the formation of a hydrate in the solid state, which is problematic for moisture-sensitive applications. In this project, production of sufficient quantities of the dehydrated form of the ligand was pursued along with a preliminary investigation into the complexing of the ligand with the metals.

**Bios:** Jennifer Parry and Evan Buckwalter joined Dr. O'Brien's lab in the fall of 2022 and have deeply enjoyed their time exploring their project. After graduating in the spring, Jennifer and Evan both plan to pursue graduate studies, Jennifer in forensic science and Evan in chemical engineering. Both would like to thank Dr. O'Brien for being a fantastic mentor and professor.

## Le Moyne Students Cybersecurity Guide

Yusef Amer, Cybersecurity
Cassidy Burns, Cybersecurity
Labib Alam, Cybersecurity

Faculty Mentor: James Enwright, Ph.D.

**Abstract:** Unlike faculty and staff at Le Moyne, students are not required to take any cybersecurity training during enrollment. Cyberattack rates have drastically increased since the COVID-19 pandemic, as many schools have shifted to online operations. To address this increase, we created a Canvas course that students can voluntarily participate in. The course contains modules about different aspects of cybersecurity. We expect that students will be able to protect themselves from current cyberattacks while being prepared for future changes in the cyberworld.

**Bios:** Yusef Amer is a cybersecurity major and president of the Le Moyne Cybersecurity Club. He particularly has an interest in red teaming and pen-testing.

Cassidy Burns is a senior cybersecurity major with a concentration in information and system security. She also studies risk management and insurance.

Labib Alam is a computer science major. Labib's research interest is system design, with a focus on developing technologies that enhance accessibility and promote sustainability for underserved communities.

## Exploring Feline Footprints with CatTracker: The Analysis of Community Dynamics and Distribution of Invasive Feline Cats in Syracuse, NY

Andrew Chojnowski, Environmental Science Systems

Faculty Mentor: Jason Luscier, Ph.D.

**Abstract:** This study investigates the impact of increased domestic cat populations on human health and native ecosystems. The CatTracker mobile app utilizes location services to pinpoint sightings, offering a global assessment tool for analyzing free-roaming cat populations. Using CatTracker, sightings of free-roaming cats were recorded weekly during spring 2024 throughout Syracuse, New York, to understand population distributions and their potential effects. These data were compared with human population densities to further evaluate predicting cat distributions.

**Bio:** Andrew Chojnowski is a senior environmental science systems major and member of the Biological Honor Society Beta Beta Beta. After graduating from Le Moyne, Andrew plans to work as an intern with Bond Brothers Civil Construction with the hope of working as a construction manager. He would like to thank Dr. Jason Luscier for his expertise and passion for the project, and designating time to help with evaluating research.

## Fatherhood in Early Modern America: The Sewards of Auburn, N.Y.

Maria LaFleur, History

Faculty Mentor: Leigh Fought, Ph.D.

**Abstract:** In partnership with the Seward House Museum in Auburn, NY this project is a case study of the politically prominent Seward family with a major focus on four generations of paternal figures. It explores themes of generational trauma and parenting styles, societal expectations of fathers, paternal dynamics, and ideals of masculinity. Primary source letters, journals, and stereoscopes from the family are used as evidence.

**Bio:** Maria LaFleur has been a tour guide with the Seward House Museum and has been in partnership with them since 2023. This project has helped her to understand social relationships and expectations within the American household. She has used this project to strengthen her anthropological skills and to promote a more holistic view of historically prominent political and social figures.

## Comparing Antidepressants to Exercise

Anastasia LaFlair, Nursing

Faculty Mentor: Carrie Rewakowski, PhD, RN, NPD-BC, CNE

**Abstract:** Depression is a common condition and nurses are involved in helping patients manage this. Both exercise and pharmacotherapy are known to be effective in addressing depression. This research sought to compare the effectiveness between the two and supports that in the long term, medication is more effective at managing depression.

**Bio:** Anastasia La Flair is a senior undergraduate student in the Department of Nursing. She completed her associate degree at St Joseph's College of Nursing in 2023, and is currently working as a nurse in the Intensive Care Unit at St Joseph's Hospital. Anastasia's future goals for nursing are to continue to serve the critical population and to earn a master's degree in the field. She would like to thank Dr. Carrie Rewakowski for her help and special attentiveness.

## Optimizing Learning Spaces: Cost Analysis of Implementing Outdoor Classrooms Versus Tents at Le Moyne

Aidan Shea, Physics
Robbie Blay, Physics

Faculty Mentor: Stamatios Kyrkos, Ph.D.

**Abstract:** The pandemic prompted the exploration of alternative classroom setups, exposing students' discontent with indoor instruction. While tents offer an alternative, they are expensive and not always conducive to learning. To tackle this, we performed a cost analysis comparing student-designed classrooms to tent rentals. Our findings indicate that these classrooms can be more cost-effective and sustainable for Le Moyne compared to tents. We present these results to Le Moyne to consider, redefine, or implement outdoor classrooms on campus.

**Bios:** Aidan Shea and Robbie Blay would like to see the ideas presented be implemented at Le Moyne. Following their time at Le Moyne, they will pursue their master's degrees in civil engineering while working at the Department of Transportation. They would like to thank their SCORE mentors Dr. Emily Ledgerwood and Dr. Yue Han, Dr. Whitney Wood, and Dr. Aparna Das for their support and time spent on the program.

## Faculty Approaches to Teaching in a Post COVID-19 World

Olivia McKenna, Psychology

Faculty Mentor: Monica Syliva, Ph.D.

**Abstract:** In a survey of post-COVID 19 experiences, more faculty reported an overall negative impact on students' mental health versus their own. This was associated with worsening attendance, late assignments and grades. The majority have responded with more lenient attendance and late-submission policies, decreases in course content, and stringent technology policies.

**Bio:** Olivia McKenna is a senior psychology major at Le Moyne, who has completed this research for her Departmental Honors thesis in psychology. She would like to thank her mentor and advisor, Dr. Monica Sylvia, for her guidance throughout this project, as well as her time at Le Moyne. When Olivia graduates, she intends on gaining more research experience in the field of psychology before attending graduate school.

# The Impact of Task Format on Reading Comprehension in College Students With and Without ADHD

April Wright, Psychology
Ryan Waldruff, Psychology

Faculty Mentor: Whitney Wood, Ph.D.

**Abstract:** Individuals with ADHD have difficulty with academic tasks. Research shows mixed results regarding whether paper or computer format is better for reading comprehension for the general population, and few studies have examined this question for students with ADHD. It is important to ensure task format is not hindering equal access to material for students with ADHD. This study aims to examine the impact of task format on reading comprehension and mind-wandering for students with ADHD.

**Bios:** Following graduation, April Wright intends to research the overlap in symptomatology of ADHD (Attention Deficit Hyperactivity Disorder), ASD (Autism Spectrum Disorder), and anxiety disorders. She also plan to study appropriate and effective interventions that promote overall wellbeing. April hopes to be a liaison between meaningful research findings and clinical practice that supports neurodivergent children and adolescents.

In the upcoming academic year, Ryan Waldruff plans to cultivate his own study examining the effects of stereotype threat on students with and without ADHD.

# The Impact of Leadership on Teacher Retention

Amy Mahunik, Doctorate in Executive Leadership

Faculty Mentor: Ceceilia Parnther, Ph.D.

**Abstract:** As rates of teacher attrition continue to rise, it has arguably never been more important for educators to recognize the paramount impact that school leaders have on retaining teachers in their schools. In confronting and responding to the growing trend of teachers accepting positions in other school settings or leaving the teaching career altogether, it is imperative that the impact school leaders place on teachers is studied in more detail to identify behaviors and practices that have both positive and negative effects. This study considers teachers' and administrators' perspectives to help inform current and future administrators to improve retention of teachers in the public-school setting.

**Bio:** Amy Mahunik is the assistant superintendent of curriculum and instruction in the Auburn Enlarged City School District. She is currently a student in the Education Doctorate Executive Leadership program at Le Moyne College and, prior to this, she earned her Bachelor of Science and Masters in Reading at SUNY Cortland and her Certificate of Advanced Study for School Building and School District Leadership at Stony Brook University and has worked as an educator for 27 years. She has focused her research on teacher retention as she has witnessed the damaging effects that high levels of teacher attrition place on our nation's school systems as a whole, and, most importantly, the growth and development of our students.

# Transformative Leadership: Mitigating Toxic Work Environments for Enhanced Employee Well-Being

Michelle Courtney Berry, Doctorate in Executive Leadership

Faculty Mentor: Ceceilia Parnther, Ph.D.

**Abstract:** This research examines the urgent critical leadership issue of Toxic Work, a widespread phenomenon affecting over 30 million Americans and recognized as a global mental health threat by the World Health Organization. The repercussions of noxious work extend across moral, emotional, reputational, and financial dimensions, resulting in a staggering trillion-dollar impact. These unacceptable consequences can be alleviated, with a significant reduction in costs, tensions, and health impacts, when leaders proactively intervene to counteract toxicity, thus prioritizing employee health and overall well-being. This inquiry aims to address gaps and identify opportunities by investigating the types of leaders, conditions, root causes, and considerations that most effectively interrupt pernicious workplace cultures and elevate employee well-being. This research can substantially impact the field, offering valuable insights, tools, and replicable strategies for leaders and practitioners grappling with the troubling, costly, and sometimes lethal challenge posed by toxic work. What global implications could a more just, people-focused, and healthy workplace have?

**Bio:** Michelle Courtney Berry, the founder and CEO of Courtney Consulting Enterprises, LLC is currently in her second semester as an Ignatian Doctoral Scholar studying Executive Leadership at Le Moyne. An experienced professional with a strong background in leadership development, strategic marketing, employee wellness, stress reduction, motivational speaking, team building, crisis communications, and performance improvement, Michelle has launched three wellness enterprises, delivered over 5,000 keynotes and talks throughout the US, Canada and Africa, and is considered an expert on the science behind creating healthy workplaces and building inclusive teams. As an internationally trained health and wellness coach and best-selling author (*Keeping Calm in Chaos: How to Work Well, Live Well, and Love Abundantly No Matter What*), Michelle holds a master's degree in organizational communication and risk communication from Cornell University and a dual bachelor's degree in English literature and political science from Binghamton University, where she was a presidential scholar and commencement speaker. She'd like to thank the faculty, staff, administration, and wonderful peers on Cohort V for their support.

# How Does Attention Deficit Hyperactivity Disorder (ADHD) Impact the Academic and Social Experiences of College Students?

Chelsea Spears, MS Clinical Mental Health Counseling

Faculty Mentors: Erica Lacey, LCSW, LMFT
and Christina Bobesky, Ph.D

**Abstract:** This study seeks to understand the specific areas of the academic and social experience that college students diagnosed with attention-deficit hyperactivity disorder (ADHD) indicate as having most impacted them. College students are often tasked with juggling multiple responsibilities including academics and their social lives. While this is often not an easy task for anyone, college students diagnosed with ADHD may struggle to fulfill these responsibilities even more. As many as twenty-five percent of college students with disabilities are diagnosed with ADHD. ADHD is known to impact executive functioning and emotion regulation, areas that are important for student success academically and socially.

**Bio:** Chelsea Spears is a graduate student in the Clinical Mental Health Counseling program at Le Moyne College, graduating in May 2024. Chelsea is completing her internship at Colgate University where she counsels their college student population. Her clinical interests include ADHD, perinatal mental health, advocacy, and using creativity in counseling. Chelsea plans to become a licensed clinical mental health counselor and work with a variety of populations, including college students.

# The Use of the General System Questionnaire-30 (GSQ-30) in Lyme Disease: The Reduction of Symptom Burden

Kathleen Hergert, MS Family Nurse Practitioner

Faculty Mentor: Gina Myers, Ph.D., RN

**Abstract:** Lyme disease (LD) and post-treatment Lyme disease syndrome (PTLDS) patients can present with many complex symptoms. These patients' symptoms are a subjective matter which challenges the clinician to communicate and document. The General System Questionnaire-30 (GSQ-30) is a tool that allows clinicians a way to measure patients' multi-system Lyme symptoms. This project involved a review of the literature to determine if the evidence supports the clinicians' use of the GSQ-30 in patients who struggle with the management of their LD or PTLDS. The literature review illustrated a need for a tool to help identify and objectify the symptoms for the growing number of patients suffering with acute LD and PTLDS. Although the GSQ-30 is young compared to other somatic scales, it has so far been shown to be sufficient in guiding clinicians in the reduction of their patients' symptom burden.

**Bio:** Kathleen Hergert has been a registered nurse since 2005 after obtaining a bachelor's degree in nursing from St. Mary's College. She has worked as a nurse in the MICU, ED and most recently as a school nurse. Kathleen is grateful to her husband and three children for their support and patience as she pursues her career goal of becoming an FNP this May. Kathleen hopes to carry out this evidence-based project in the future. She would also like to thank Gina Myers for giving her this opportunity and guidance as she explored her interest in Lyme disease.

## Occupational Injustice Unveiled: Navigating the Challenges in Palestinian Families Amidst Crisis

Morgan Hiltbrand, MS Occupational Therapy

Faculty Mentor: Marisa Davis OTD, OTR/L, PTA

**Abstract:** In recent years, Israeli authorities have forcibly uprooted Palestinian families from their homes, leading to a crisis with tragic consequences, including loss of lives. The repercussions extended beyond physical destruction, profoundly affecting the mental health of those involved. While some Palestinians choose immigration to the U.S. as a means to escape forceful relocation, others opt to remain in their homeland, facing ongoing challenges. Even those who seek refuge in the U.S. for a safer environment continue to grapple with mental health struggles. For those with extended family remaining in Palestine, anxiety about their well-being and safety becomes a constant concern. This anxiety, in turn, disrupts the balance of daily life for individuals now residing in the U.S., creating occupational imbalances as they navigate the challenges of being physically distant from their families during times of crisis. This poster presents how occupational therapists can address and facilitate mental health concerns within the Palestinian community here in the U.S.

**Bio:** Morgan Hiltbrand is a second-year occupational therapy student graduating this May. She has her bachelors of science in psychology. After graduation, she plans on working as a licensed occupational therapist in the acute care setting.

## Assistive Technology: Sensory Bracelet

Anna Salamino, MS Occupational Therapy
Alexis Tartaglia, MS Occupational Therapy
Morgan Hiltbrand, MS Occupational Therapy

Faculty Mentors: Marisa Davis, OTD, OTR/L, & Jenna Riley, OTD, OTR/L

**Abstract:** A sensory bracelet was designed and created via Le Moyne College's Keenan Center, and external materials were gathered to assist an individual with autism modify her school environment to meet sensory needs.

**Bios:** Anna Salamino is a second-year student in the Occupational Therapy Program at Le Moyne College, graduating in May 2024. She is looking forward to using her education and passion for occupational therapy to make a meaningful difference in the lives of individuals, helping them achieve greater independence and quality of life.

Alexis Tartaglia is a second-year student in the Occupational Therapy Master's program at Le Moyne College, graduating in May 2024.

Morgan Hiltbrand is a second-year occupational therapy student graduating this May. She has her bachelor's degree in psychology. After graduation, she plans on working as a licensed occupational therapist in the acute care setting.

# How College Athletics Can Provide Support for the Mental Health of Varsity Student Athletes with the Use of Mindfulness Intervention

Jane Howes, MS Physician Assistant Studies
Jack Howes, MS Physician Assistant Studies
Amy Melendez, MS Physician Assistant Studies
Jack Mulvihill, MS Physician Assistant Studies
Zach Revette, MS Physician Assistant Studies
Meredith Wagner, MS Physician Assistant Studies

Faculty Mentor: Patrick Nappi, DMSc, PA-C

**Abstract:** Collegiate varsity student-athletes face unique stressors compared to other students due to the necessity to balance academics and sports. Mindfulness training has the potential to positively impact the mental health of collegiate student-athletes, improving both athletic performance and overall well-being. Our objective was to analyze existing literature examining the influence of Mindfulness Intervention on college student-athletes, exploring their impact on anxiety and depression. We analyzed three randomized control trials with a total of 106 participants. Those three studies found a statistically significant effect of mindfulness training on symptoms of anxiety in varsity athletes. Additionally, two of the three trials found a statistically significant effect of mindfulness training on the symptoms of depression in varsity athletes. We hope this can serve as a valuable intervention to reduce the incidence of anxiety and depression in collegiate student-athletes.

**Bios:** Jane Howes is a second-year graduate student and is pursuing a master's degree in physician assistant studies. She played lacrosse at Le Moyne as an undergraduate and is passionate about athletics and mental health. Upon graduation she plans to work locally and is interested in obstetrics and gynecology as well as internal medicine.

Jack Mulvihill is a second-year student in the Physician Assistant Studies Program at Le Moyne College. Jack earned bachelor's degree in biology from St. John Fisher College in Rochester, N.Y. He played college lacrosse for five years during his time at St. John Fisher and worked on various student-athlete and mental health committees. He currently has interests in cardiology and orthopedics, and is excited for whatever comes after graduation.

Jack Howes is a second-year graduate student in the Le Moyne college physician assistant program. He played four years of lacrosse for Le Moyne and was an active member of their Student Athlete Advisory Committee. He's very passionate about men's mental health and is the founder of Run Your Mouth promoting awareness and action towards breaking down the stigma surrounding men's mental health. He plans to work in Family Medicine or Orthopedics.

Meredith Wagner is a second-year graduate student pursuing a Master of Science degree in physician assistant studies at Le Moyne College. She completed her undergraduate education at Skidmore College where she was a member of the varsity swim team for four years and also served as a member of the Student-Athlete Advisory Committee. She is passionate about the mental health of student-athletes both in and out of the sporting arena. Upon graduation, she plans to work in emergency medicine.

Zachary Revette is a second-year graduate student at Le Moyne College and is part of the physician assistant program. He attended Le Moyne for his undergraduate education and participated in high school swimming and golf. He is passionate about sports and mental health, especially in the college age population. After graduation, he would like to work as a primary care provider but is also interested in orthopedics.

Amy Melendez is currently enrolled as a graduate student in the Physician Assistant Studies program at Le Moyne College. She played soccer for four years at Montemorelos University. She is deeply passionate about research approaches that contribute to raising awareness of the diversity within the field of medicine. Her career aspiration is to serve as a family medicine provider in underserved community.

## Effects of Endocrine Disrupting Chemicals on Female Fertility

Jordyn Washington, MS Physician Assistant Studies
Livia Annese, MS Physician Assistant Studies

Faculty Mentors: Elizabeth Mercer MPAS, PA-C and Travis Hayden, MPAS, PA-C

**Abstract:** Endocrine disruptors are environmental chemicals that mimic or block estrogen. This is a systematic review of seven observational studies that assessed the relationship between increased levels of endocrine disruptors in the urine of females of childbearing age and markers of fertility. All seven observational studies found that some variation of endocrine disruptors did increase the risk of infertility. Extensive studies are essential to validate the associations identified in our review and to better understand the underlying biological mechanisms. These efforts will enhance the reliability of findings and guide evidence-based practice for healthcare providers assisting women facing fertility challenges.

**Bios:** Jordyn Washington and Livia Annese are second-year physician assistant students at Le Moyne College. Jordyn is from Olean, NY with a bachelor's degree in health science from St. Bonaventure University. Livia is from Saratoga, N.Y., with a degree in psychology from the University at Albany. Both Jordyn and Livia will be graduating with master's degrees in physician assistant studies in August 2024.

## Weight Stigma, Weight Discrimination, and Mental Health

Samantha Hallenbeck, MS Clinical Mental Health Counseling

Faculty Mentor: Christina Bobesky, Ph.D.

**Abstract:** This research explores the impact experiencing weight based discrimination and stigma has on mental health. It examines who experiences weight based discrimination/stigma, where these experiences occur, how they occur, and the effect those experiences have. Oftentimes weight-based discrimination and stigma occur very casually in our society because many people are not aware of the negative effects. Understanding how those experiences influence mental health allows us, both as individuals and as clinicians, to examine our own actions and begin to move towards a more just and caring world.

**Bio:** Samantha Hallenbeck is a senior from Utica, N.Y., in the graduate clinical mental health counseling program at Le Moyne. After graduation Samantha plans to embark on the journey toward mental health counseling licensure. She looks forward to helping people in her community and continuing to learn about mental health throughout her life.

This Scholars Day celebration is sponsored by the Student Research Committee,
the Office of the Provost and Academic Vice President of Le Moyne College,
and the Office of the Dean of the College of Arts and Sciences.