



# SCHOLARS DAY 2017

A Celebration of Student Scholarship

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FRIDAY, APRIL 21, 2017

8 A.M. – 5:30 P.M.

JAMES COMMONS AND CURTIN SPECIAL EVENTS ROOM  
CAMPUS CENTER

LE MOYNE  
Greatness meets Goodness

## FROM THE PRESIDENT

Congratulations, student scholars, for your exemplary commitment to intellectual achievement!

Additionally, I add my thanks to the friends and family that supported and encouraged you when you spent those days and nights in the library or laboratory. And finally, to your faculty mentors, who nurtured and guided you through the creative process, my sincerest thanks.

Scholars Day at Le Moyne College is the culmination of a year, and in some cases, more than one, of intense study, careful faculty mentoring, and tremendous discipline. Active involvement in scholarly investigation is a hallmark of a Jesuit education. As a direct result of research and creative experiences across the disciplines, you, the students become actively involved with important questions, driving you to develop skills in research design, empirical observation, data collection and analysis, artistic production, literary analysis, information literacy, and communication, developing and utilizing cutting edge technologies along the way.

Thank you for your intellectual contributions to our community of scholars!

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

## FROM THE PROVOST

Nearly 500 years ago, a nobleman from the north of Spain was critically wounded in the town of Pamplona during a battle between the Spanish and the French. His name was Ignatius, and he was a member of the prominent Loyola family. And the conversion he experienced over the course of his long convalescence would eventually bloom into the founding of the Society of Jesus (i.e., the Jesuits) along with one of the most admired and rigorous networks of higher education in the history of civilization. You, our students, are part of this great history and tradition. By your remarkable achievements, you are now counted among those with the potential to change the world in true Jesuit fashion – by exceeding the bonds of mediocrity and dedicating your lives to the pursuit of knowledge and self-reflection, and being women and men for others. Thank you for providing such a great example of the Le Moyne College mission through your scholarly work. Congratulations on all that you have accomplished so far and may the best be yet to come!

*Joseph G. Marina, S.J., Provost and Vice President for Academic Affairs*

## FROM THE DEAN OF ARTS AND SCIENCES

I am delighted to join in welcoming you to Scholars Day, our annual celebration of the scholarship produced by determined and talented students from across Le Moyne College. Scholars Day foregrounds not only the variety and breadth of study pursued across campus, but also the concrete research, presentations, publications, and results such studies yield as our students evolve as mature student-scholars. Working closely with faculty mentors, these high-achieving individuals have explored what it means actively to live the life of the mind; to ask a question, and answer it; and to pursue a theory through the challenges, frustrations, and delights of intellectual inquiry. The results they share today reflect ambition, hard work, and creativity, as well as the accumulated skills and knowledge they have painstakingly gathered throughout their time here at Le Moyne.

We are immensely proud of these students' achievements; grateful to the faculty who have worked with and guided them so diligently; and delighted to share with each of you today's recognition of their successes. It is a privilege to have watched their evolution; thank you for joining us as we celebrate the scholars they have become!

Kind regards,  
*Kathleen Costello-Sullivan, Ph.D., Dean of the College of Arts and Sciences*

## FROM THE DEAN OF THE MADDEN SCHOOL OF BUSINESS

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. Today we celebrate this relationship and, most of all, the Le Moyne students who are poised to become the innovators and leaders of tomorrow.

*James Joseph '83, M.P.A.  
Dean of the Madden School of Business*

## FROM THE DEAN OF GRADUATE AND 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 intimate relationship between student and faculty mentor that will ultimately produce a graduate who has the mental capacity and passion to truly 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 recognizes the important role of research and scholarship in preparing tomorrow's educators and health care professionals. We congratulate our student and faculty presenters today, not only for their commitment to this work, but more importantly, for their collaborative efforts, which give testimony to the academic excellence of our College.

*Dennis R. DePerro, Ed.D.  
Dean of the Purcell School of Professional Studies*

## ABOUT LE MOYNE COLLEGE STUDENT SCHOLARS DAY

Welcome to the 12th annual Le Moyne College Student Scholars Day, a tradition that started with the Undergraduate Research Symposium in 1998. Scholars Day 2017 celebrates the research, entrepreneurial, and creative scholarly accomplishments of students across all academic disciplines. A quick perusal of this program reveals how vibrant scholarly activity is on the Le Moyne College campus, with over 55 students representing more than 20 academic majors presenting their work today. We are so happy to have you join us in this celebration of our students' achievements. In addition, Le Moyne students are publishing their work in scholarly journals, presenting it at professional meetings, producing works of art, participating in theatrical works, and getting accepted into diverse post-graduate programs. This year we are delighted to continue the tradition of hosting an exceptional Le Moyne College graduate as a guest speaker, by welcoming the return of Jason Palladino '11 to campus. Jason is currently pursuing his doctorate in genetics and genomics in the Department of Molecular and Cell Biology at the University of Connecticut and will speak during the lunch intermission. Please join us for food and drinks during the poster session directly following our afternoon talks.

*Devon Keeney, Ph.D.  
Associate Professor of Biological and Environmental Sciences  
Chair of the Student Research Committee*

## SCHEDULE OF EVENTS

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8 – 9:30 A.M.	CONTINENTAL BREAKFAST
8:15 – 8:30 A.M.	WELCOMING REMARKS Devon Keeney, Ph.D. <i>Associate Professor of Biological and Environmental Sciences</i> <i>Chair of the Student Research Committee</i>  Hilary McManus, Ph.D. <i>Associate Professor of Biological and Environmental Sciences</i> <i>2016-2017 Louis D. DeGennaro, Ph.D.,</i> <i>Undergraduate Mentor of the Year</i>
8:30 A.M. – NOON	MORNING PRESENTATION SESSIONS
NOON – 12:45 P.M.	LUNCH
12:10 – 12:45 P.M.	GUEST SPEAKER JASON PALLADINO '11
12:45 – 4 P.M.	AFTERNOON PRESENTATION SESSIONS
4 – 4:10 P.M.	CONCLUDING REMARKS FOR ORAL SESSIONS
4:10 – 5:30 P.M.	POSTER SESSION AND CLOSING RECEPTION (BEER AND WINE, HORS D'OEUVRES)

## SCHEDULE OF SESSIONS

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### MORNING SESSION

8:30 – 8:45 a.m.	Substance Use Disorders in Physicians: The Prevalence, Causes and Ethical Implications Clare Herubin, <i>biology</i>
8:45 – 9 a.m.	The Politics of Captain America: Civil War Theodore Grader II, <i>communications</i>
9 – 9:15 a.m.	The Third Pillar of Science; How Computational Science is Changing the Way We Do Research James Gayvert, <i>chemistry, computer science</i>
9:15 – 9:30 a.m.	Making Bank Timothy Grader II, <i>English, communications</i>
9:30 – 9:45 a.m.	Thoughts to Stage: The Process of Translating Literature to the Theatre Andrew Schuchman, <i>English</i>

- 9:45 – 10 a.m. Frida Kahlo: Feminist  
Marisa Valent, *Spanish, theatre arts*
- 10 – 10:15 a.m. The Objectification of Women in Advertising and its  
Effects on Body Dissatisfaction  
Alexandra Paulin, *communications*
- 10:15 – 10:30 a.m. The Bioethics of Genetic Intelligence Research  
Megan Audette, *biology*
- 10:30 – 10:45 a.m. To Protest or Not to Protest: The Case of the Black Athlete  
Amari D. Pollard, *communications*
- 10:45 – 11 a.m. Margaret and Me: Young American Women Abroad  
Ellen Murphy, *English*
- 11 – 11:15 a.m. The Dichotomy of Femininity in Arthur Miller's Plays  
Katie Stomps, *theatre arts*
- 11:15 – 11:30 a.m. Mind and Memory  
Alex Altland, *English*
- 11:30 – 11:45 a.m. The Hope of Return: Palestinian Shame and Guilt Post-Nakba  
Sebaah Hamad, *English*
- 11:45 a.m. – Noon The Effects of Parental Marital Status and Sibling Structure on  
Young Adult's Romantic Relationships  
Heidi Bastian, *psychology*

## **NOON – 12:45 P.M. LUNCH**

12:10 – 12:45 P.M. *Guest Speaker* Jason Palladino '11

## **AFTERNOON SESSION**

- 12:45 – 1 p.m. Synthesis and Characterization of Lithium Carboxylates for  
Use in Liquid Organic Scintillator  
Melissa Schmitz, *physics, chemistry*
- 1 – 1:15 p.m. Evaluation of Operator Perception of Unmanned Aerial System  
Technology in a Safety-Critical System  
Daniel Della Posta, *information systems, software applications and  
systems development*
- 1:15 – 1:30 p.m. Unmanned Aerial Systems  
Trevor Onori, *information systems, marketing*
- 1:30 – 1:45 p.m. Requirements and Design of Wearable Immersive Augmented Reality  
(WIAR) Technology for Ship Navigation  
Jean-Philippe Rancy, *information systems (M.S.)*

## SCHEDULE OF SESSIONS

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- 1:45 – 2 p.m. Southern Slavery and Antebellum Law: Modifications Suited to the State and Master Class  
Steven Casement, *history*
- 2 – 2:15 p.m. The Election of 1800: Influenced by Alexander Hamilton  
Rachel Crumley, *history, theatre arts*
- 2:15 – 2:30 p.m. The West Water Street Project: A Three-Century Economic History of a Single Block in Syracuse, New York  
Michael Schmid, *history, political science*; Alex Kondzielawa, *economics*; Netania Kligerman, *computer science, information systems*; Ryan J. Breen, *software applications and systems development*; Shakeen Wharton, *computer science*
- 2:30 – 2:45 p.m. Role of Temperature and Moisture in the Rate of Decomposition of Soil Organic Matter  
Corey Palmer, *environmental science systems*;  
Katherine Markstein, *biochemistry*
- 2:45 – 3p.m. New insights and challenges concerning the molecular characterization of the congenital craniofacial disorder, Treacher Collins Syndrome  
Gianno Pannafino, *biology*
- 3 – 3:15 p.m. Relationship of Temperature on the Timing of Bird Migration  
Corey Palmer, *environmental science systems*;  
Erica Mackey, *environmental science systems*
- 3:15 – 3:30 p.m. Cross-Border Usage of Drones by the American Government: Ethical and Political Implications  
Nanette McMahon-White, *criminology*
- 3:30 – 3:45 p.m. Marbledale Road BCP Site  
Jared Sheldon, *chemistry pre-engineering*
- 3:45 – 4 p.m. To Braid or Not to Braid  
Daniella Vazquez, *mathematics*
- 4:10 – 5:30 p.m. POSTER SESSION AND CLOSING RECEPTION  
(BEER AND WINE, HORS D'OEUVRES)

# ABSTRACTS, FACULTY MENTORS, AND BIOGRAPHIES: STUDENT SCHOLARS ORAL AND POSTER PRESENTATIONS

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8:30 – 8:45 a.m.

## SUBSTANCE USE DISORDERS IN PHYSICIANS: THE PREVALENCE, CAUSES AND ETHICAL IMPLICATIONS

Clare Herubin, biology

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Faculty Mentor: Christina Michaelson, Ph.D.

**Abstract:** The issue of physicians suffering from substance use disorders dates back as far as the 1800s. Substance use disorders affect 10-12 percent of practicing physicians, a significantly higher number than the 8 percent affected in the general public. Several methods of treatment are offered, usually by the physician health program in the physician's state of residence. Yet, there is still a significant controversy over the ethics behind a physician who has completed treatment returning to work.

**Bio:** Clare is a senior biology major and a member of the Integral Honors Program. After graduation she will be attending Upstate Medical University's Doctorate of Physical Therapy program.



8:45 – 9 a.m.

## THE POLITICS OF CAPTAIN AMERICA: CIVIL WAR

Theodore Grader II, communications

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Faculty Mentor: Bryan Cole, M.F.A.

**Abstract:** This Creative Honors Project combines film analysis and painting. It deconstructs the political themes in *Captain America: Civil War* (Directed by Joe Russo and Anthony Russo, 2016), and responds to those themes with the medium of paint.

**Bio:** Theodore is a senior who is ecstatic to be a part of the Le Moyne College community. He is passionate about the creative arts, especially film, theatre and painting. He looks forward to attending graduate school for film production or further developing his leadership skills in the business world.



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9 – 9:15 a.m.

## THE THIRD PILLAR OF SCIENCE; HOW COMPUTATIONAL SCIENCE IS CHANGING THE WAY WE DO RESEARCH

James Gayvert, chemistry, computer science

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Faculty Mentor: Michael Masingale, Ph.D.

**Abstract:** Computational science is a rapidly growing multidisciplinary field that has become a staple of modern research. Numerous disciplines such as biology, chemistry and engineering employ advanced algorithms and computer modeling and simulation software to help understand and solve complex problems. However, with these new tools come new challenges and potential pitfalls that researchers must be cognizant of in order to practice reliable and responsible science. This thesis examines these issues and the development of computational science through a historical lens.



**Bio:** James is a senior chemistry and computer science double major. After graduation he will begin pursuing a Ph.D. in chemistry in the fall. James would like to thank Dr. Michael Masingale and Dr. Carmen Giunta for their guidance in the development of this thesis, and Dr. Matthew Fee and Dr. Holly Rine for their mentorship as part of the Integral Honors program.

9:15 – 9:30 a.m.

## MAKING BANK

Timothy Grader II, English, communications

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Faculty Mentor: Patrick Lawler, M.A.

**Abstract:** The Parable of the Talent is a lesson from Scripture on the gifts each person possesses and how they should use them. A review of scholars' writings on the parable, however, reveals the lesson's meaning is not concrete. Much previous work has been devoted to understanding the parable by itself. This screenplay situates the lesson of the parable as a way of living and thereby acts as an indirect theological critique of the parable.



**Bio:** Timothy is a senior communications major focusing in production work and audio recording. He plans to continue working for the Audiobook Creation Exchange with Amazon and Audible as an audiobook narrator and producer.

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9:30 – 9:45 a.m.

## THOUGHTS TO STAGE: THE PROCESS OF TRANSLATING LITERATURE TO THE THEATRE

Andrew Schuchman, English

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Faculty Mentor: Patrick Lawler, M.A.

**Abstract:** To translate an idea, like a historical event or a legend, is a massive undertaking, and one that the average human should not take lightly. In this project, Andrew Schuchman attempts to shed light on the process while detailing the process of his own adaptation of a little-known story by the Brothers Grimm.

**Bio:** From a small town called Harpursville, N.Y., Andrew is an English major in his senior year. Recently, he has published his debut work *Duster*.



9:45 – 10 a.m.

## FRIDA KAHLO: FEMINIST

Marisa Valent, Spanish, theater arts

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Faculty Mentor: Orlando Ocampo, Ph.D.

**Abstract:** Was Frida Kahlo a feminist, or was she merely a victim of the accident that affected her for the rest of her life? Explore Kahlo's art through a feminist lens and see the feminist costumes it inspired.

**Bio:** Marisa is a Spanish and theatre arts double major graduating this spring. She has been accepted into Le Moyne's arts administration graduate program. She would like to thank Orlando and Lindsey for all their amazing help.



10 – 10:15 a.m.

## THE OBJECTIFICATION OF WOMEN IN ADVERTISING AND ITS EFFECTS ON BODY DISSATISFACTION

Alexandra Paulin, communications

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Faculty Mentor: Ann Allen, M.S.

**Abstract:** Whether it is a model in a magazine, a woman being objectified on a billboard, or an actress on a TV commercial, images of how women should look and dress are nearly inescapable. My thesis focuses on society's unrealistic



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view of the ideal woman – an idea that is fueled by sexist ads – and its perpetuation of an idea of beauty that is neither attainable nor authentic.

**Bio:** Alexandra is a graduating senior in the Integral Honors Program. Upon graduation, Alexandra will join M&T Bank as a management development candidate in Buffalo, N.Y. She would like to thank Professor Ann Allen, Dr. Maria DiTullio, Dr. Matthew Fee and all others responsible for the completion and success of her thesis.

10:15 – 10:30 a.m.

## THE BIOETHICS OF GENETIC INTELLIGENCE RESEARCH

Megan Audette, biology

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Faculty Mentor: Michael Kagan, Ph.D.

**Abstract:** There are several fears that surround genetic research in humans, especially regarding intelligence. Using a utilitarian analysis, recent work in the area of genetic intelligence research is analyzed for scientific and ethical soundness. This analysis hopes to contribute to the ongoing conversation of how scientific researchers can provide ethical and trustworthy research that both contributes to scientific advancement and does not serve malicious intentions.



**Bio:** Megan is a senior biology major from Franklin, Mass., and is hoping to begin medical school this coming fall following her graduation from Le Moyne. This project has helped her to break out of her scientific comfort zone and see the impacts of science from an outsider's perspective. Megan would like to thank her mentors, Dr. Kagan and Dr. Mitchell, for their help and support in this project as well as the Integral Honors Program here at Le Moyne.

10:30 – 10:45 a.m.

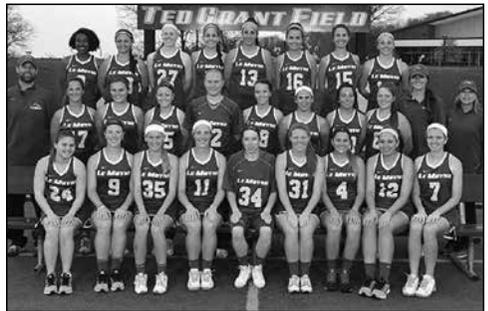
## TO PROTEST OR NOT TO PROTEST: THE CASE OF THE BLACK ATHLETE

Amari D. Pollard, communications

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Faculty Mentor: Michael Streissguth, M.S.

**Abstract:** Despite the American public's desire to separate the two, politics and sports are deeply interwoven. This reality was on full display when 49ers' Colin Kaepernick protested police brutality and racial inequality by kneeling during the national anthem in 2016, and athletes across America quickly followed suit. This





project explores the black athlete’s choice to protest by looking at the shared experiences of athletes across all athletic levels; specifically through the lens of Nottingham High School junior Quentin Lawrence.

**Bio:** Amari is a senior communications major with a minor in creative writing. She hopes to move to New York City after graduation to pursue a career in journalism. Amari is the editor-in-chief of *The Dolphin*, the public relations representative for P.O.W.E.R., and a former member of the women’s lacrosse team. She would like to thank her mentor Professor Michael Streissguth, the Integral Honors Program, and her family for their constant support.

10:45 – 11 a.m.

### MARGARET AND ME: YOUNG AMERICAN WOMEN ABROAD

Ellen Murphy, English

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Faculty Mentor: Julie Olin-Ammentorp, Ph.D.

**Abstract:** In an amalgamation of creative nonfiction and scholarly work, this project weaves together the stories of 19th century Margaret Fuller with the experiences of a 21st century traveler in order to trace the experiences and thoughts common to them both. The result is a dialogue between two young American women abroad in Europe, separated by 200 years.

**Bio:** Ellen is a student in the Integral Honors Program and a senior English major with minors in anthropology, advanced writing, and medieval studies. She is an editor for *The Salamander* and aspires to be an acquisitions editor. Her genre of choice is nonfiction, and her creative nonfiction essay “Rapid” won the 2016 Nonfiction Newhouse Award and will be published in the 2017 *plain china* national undergraduate writing anthology.

11 – 11:15 a.m.

### THE DICHOTOMY OF FEMININITY IN ARTHUR MILLER’S PLAYS

Kathleen Stomps, theatre arts

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Faculty Mentor: Lindsey Sikes-Voorhees, M.F.A.

**Abstract:** In prolific American playwright Arthur Miller’s most well-known plays, there is a separation of the major female characters into two loose archetypes: the temptress and the dowager. These types are not flattering, nor are they particularly meant to be. The men in his plays are treated equally harshly, especially with respect to the contemporary fears of homosexuality. Through costume design, the presented issues of femininity and masculinity are visually tackled.





**Bio:** Kathleen is a senior theatre arts major in the Integral Honors Program. She intends to attend graduate school for costume design.

11:15 - 11:30 a.m.

## MIND AND MEMORY

Alex Altland, English

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Faculty Mentor: David Lloyd, Ph.D.

**Abstract:** A creative thesis that explores identity and intelligence as a function of memory. Our current education system often seems to emphasize the ability to regurgitate as a measure of intelligence. Computers are already far better at this than humans, and so this thesis attempts to explore those implications and poses the question: What makes us who and how we are?

**Bio:** Alex is an English major and creative writing concentrator with minors in philosophy, communications, and advanced writing. He hopes to work in information technologies after graduation.



11:30 - 11:45 a.m.

## THE HOPE OF RETURN: PALESTINIAN SHAME AND GUILT POST-NAKBA

Sebaah Hamad, English

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Faculty Mentors: Elliott Bazzano, Ph.D. and Linda Pennisi, M.F.A.

**Abstract:** My Integral Honors thesis examines the 1948 occupation of Palestine and its effect on Palestinian life and poetry. I argue that the tropes of shame and guilt in Palestinian poetry reinforce a hope of return. I use original interviews that I conducted with Palestinian poet Salma Khadra Jayyusi in summer 2016 and her poem *Without Roots* to inform my argument. I then respond to my research trip to Jordan and Palestine with original poetry.

**Bio:** Sebaah absolutely loves words. Her Scholar's Day project and SRC grant has allowed her to explore the complexity of language in Arabic and translation. In the fall, she will enter a Ph.D. program to specialize in Arabic literature.



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11:45 - Noon

## THE EFFECTS OF PARENTAL MARITAL STATUS AND SIBLING STRUCTURE ON YOUNG ADULT'S ROMANTIC RELATIONSHIPS

Heidi Bastian, psychology

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Faculty Mentor: Shawn Ward, Ph.D.

**Abstract:** This study examined parental marital status, characteristics of parental relationship, the presence of siblings in the family unit, and participant's current romantic relationship status along with ratings of the relationship if they were in one. Participants completed demographic questions, the Triangular Love Scale and the Family Attitudes Questionnaire. Analyses were performed to examine similarities between parental marital status and relationship characteristics, the presence of siblings in the family, and participant's romantic relationship status and ratings.



**Bio:** Heidi is a senior psychology major from the Finger Lakes region. In the fall of 2017 she plans to continue into a doctoral-level school psychology graduate program. Heidi would like to thank Dr. Ward, Dr. Michaelson, Dr. Sylvia, the Student Research Committee, and Le Moyne College's psychology department for supporting this project.

12:10 - 12:45 p.m.

## GUEST SPEAKER

Jason Palladino '11

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**Bio:** Jason graduated from Le Moyne College in 2011 with Bachelor of Science degrees in biological sciences (neurobiology concentration) and psychology. While at Le Moyne, Jason conducted separate research projects in the departments of biological sciences and religious studies, and presented his undergraduate biology research at the 2011 annual meeting of the American Society of Parasitologists in Anchorage, Alaska. He is currently pursuing his doctorate in genetics and genomics in the Department of Molecular and Cell Biology at the University of Connecticut. His research assesses the effects of centromere dysfunction on genome stability, tumorigenesis, and development using the fruit fly (*Drosophila melanogaster*) model system. After graduation, Jason would like to continue his research investigating genome stability as a postdoctoral research fellow.



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12:45 – 1 p.m.

## SYNTHESIS AND CHARACTERIZATION OF LITHIUM CARBOXYLATES FOR USE IN LIQUID ORGANIC SCINTILLATOR

Melissa Schmitz, physics, chemistry

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Faculty Mentor: Christopher Bass, Ph.D.

**Abstract:** Fast neutron spectroscopy can be performed using lithium-loaded organic liquid scintillators. Typical loading involves emulsifying an aqueous lithium salt into a scintillator cocktail. A proposed improvement on this approach dissolves long-chain lithium carboxylate salts directly into an organic scintillator.

The synthesis and characterization of lithium dodecanoate, lithium octanoate, and lithium hexanoate in commercial scintillator cocktails Ultima Gold AB and a custom Eljen scintillator in terms of solubility and light transmittance properties is discussed.

**Bio:** Melissa is a junior physics and chemistry dual major with a minor in mathematics. After graduation, she plans to pursue graduate study in either theoretical physics, quantum computing or materials engineering. She would like to thank Dr. Christopher Bass for his excellent mentorship as well as the McDevitt Center and Student Research Committee for their generous funding, which has allowed her to pursue her research and travel to present her findings at various national conferences including the 2016 Fall Meeting of the APS Division of Nuclear Physics.



1 - 1:15 p.m.

## EVALUATION OF OPERATOR PERCEPTION OF UNMANNED AERIAL SYSTEM TECHNOLOGY IN A SAFETY-CRITICAL SYSTEM

Daniel Della Posta, information systems, software applications and systems development

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Faculty Mentor: Martha Grabowski, Ph.D.

**Abstract:** The aim of the Unmanned Aerial Systems (UAS) evaluation project is to evaluate operator perception of an emerging technology, UAS, on operator performance, collaboration, decision-making and communication in a safety-critical-system. This study will analyze data collected through online surveys to better understand how UAS perform collaboratively, and how operators interacts with the UAS, how UAS collaboration occurs, if the UAS is simplifying tasks and is efficient in communicating with operators, and if the collaboration and communication between UAS vehicles, and between UAS vehicles and operators, is useful and effective.





**Bio:** Daniel is graduating in May and is seeking employment in Central New York, with hopes to relocate to Seattle, Boulder, or Washington D.C. and eventually attend graduate school. He cannot thank Dr. Grabowski enough for her inspiration and help over the past three years. and especially throughout his research experience.

1:15 - 1:30 p.m.

## UNMANNED AERIAL SYSTEMS

Trevor Onori, information systems, marketing

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Faculty Mentor: Martha Grabowski, Ph.D.

**Abstract:** Undergraduate research in Unmanned Aerial Systems, Operator Perception, Swarm Architecture and Collaboration.

**Bio:** Trevor will continue to work at Knowles in Cazenovia as a supply chain specialist. He will stay in touch and mentor future McDevitt Research teams.



1:30 - 1:45 p.m.

## REQUIREMENTS AND DESIGN OF WEARABLE IMMERSIVE AUGMENTED REALITY (WIAR) TECHNOLOGY FOR SHIP NAVIGATION

Jean-Philippe Rancy, information systems (M.S.)

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Faculty Mentor: Martha Grabowski, Ph.D.

**Abstract:** Wearable Immersive Augmented Reality technology provides information for decision making by placing the user in an operational environment by superimposing images on top of a view of the external surroundings using a wearable platform, presumably to enhance decision making. This research focuses on the requirements and design of a prototype WIAR technology that was developed for ship navigation by exploring three different technologies: Wearable, Immersive Systems, and Augmented Reality that together was implemented as a Google Glass application (GlassNav™) for maritime navigation.



**Bio:** Jean-Philippe is currently a graduate student and working for I.T. System Administration Department at Le Moyne College. He will be completing a master's degree in information systems this coming May and moving on to his doctoral studies in information systems at Syracuse University.

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1:45 - 2 p.m.

## SOUTHERN SLAVERY AND ANTEBELLUM LAW: MODIFICATIONS SUITED TO THE STATE AND MASTER CLASS

Steven Casement, history

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Faculty Mentor: Douglas Egerton, Ph.D.

**Abstract:** This paper deals with the complexity of the legal system through case analysis in the American South during the Antebellum period. The laws themselves took form in a variety of ways and this paper contends that the intention of the South in these cases was the strengthening of the position of the master class which in of itself would lead to resulting legal decisions only to be stamped out with the collapse of diplomacy and civil war.

**Bio:** Steven is currently a junior history major at Le Moyne with a concentration in adolescent education and minors in economics and music. He is in the process of working out a departmental honors topic for the fall with two of the Le Moyne College history faculty as well as looking at graduate programs in history for fall applications. Steven would like to thank Dr. Douglas Egerton from the department of history for all of his incredible help and guidance throughout the paper writing process.



2 - 2:15 p.m.

## THE ELECTION OF 1800: INFLUENCED BY ALEXANDER HAMILTON

Rachel Crumley, history, theatre arts

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Faculty Mentor: Douglas Egerton, Ph.D.

**Abstract:** The election of 1800 was extremely close and highly contested. Would John Adams keep his job as president or would he be replaced by Aaron Burr or Thomas Jefferson? Despite the prominence of these candidates, the most important person in this election was Alexander Hamilton. Through his influence and letters, Hamilton was able to manipulate the political system to benefit his own agenda.

**Bio:** Rachel is a junior and a double major in history and theatre. She has a passion for Alexander Hamilton and is an active participant in the performing arts. She would like to thank everyone who helped her to achieve her goals throughout this process.



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2:15 - 2:30 p.m.

## THE WEST WATER STREET PROJECT: A THREE-CENTURY ECONOMIC HISTORY OF A SINGLE BLOCK IN SYRACUSE, NEW YORK

Michael Schmid, history, political science; Alex Kondzielawa, economics; Netania Kligerman, computer science, information systems; Ryan J. Breen, software applications and systems development; Shakeen Wharton, computer science

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Faculty Mentor: Wayne Grove, Ph.D.

**Abstract:** Too little attention in economic history is paid to a fundamental geographic unit of economic development – the city block. This research provides a 300-year economic history of a single block in downtown Syracuse, the 200 block of West Water Street. The economic history of this block is characterized by transportation changes, business agglomeration and luck. This luck factor suggests that while economic planning is often difficult, certain neighborhoods can hold dormant potential for future economic prosperity, often in unlikely ways.

**Bio:** Michael is a junior history and political science major and a legal studies minor from Auburn, N.Y. After graduation, he plans to attend law school. Alex will be graduating from Le Moyne College in May 2017. Alex is an economics major with a math minor. Alex is incredibly interested in music and the arts and plans to study next semester in Florence, Italy, through Le Moyne's study abroad program. After his undergraduate years, Alex plans to pursue an MBA. Netania is a computer science and information systems major with a special interest in cybersecurity. She plans to earn a master's degree in a computer science related field upon graduation in May 2020 and is thinking about going into government. Ryan is a Syracuse native who went to East Syracuse-Minoa High School. He grew up with a love for technology, which led him to pursue a software applications and systems development degree at Le Moyne. Shakeen is a sophomore at Le Moyne College majoring in computer science. Shakeen grew up in the East New York section of Brooklyn. Someday Shakeen hopes to become a systems analyst. Thank you to Dr. Grove, the wonderful staff at the Onondaga Historical Association, and everyone else who assisted with this project.

2:30 - 2:45 p.m.

## ROLE OF TEMPERATURE AND MOISTURE IN THE RATE OF DECOMPOSITION OF SOIL ORGANIC MATTER

Corey Palmer, environmental science systems; Katherine Markstein, biochemistry

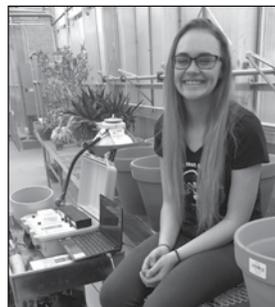
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Faculty Mentor: Lawrence Tanner, Ph.D.

**Abstract:** Our research investigates the roles of moisture and temperature in controlling the rate of decomposition of soil organic matter, a process that contributes CO<sub>2</sub> to the atmosphere. We are monitoring the CO<sub>2</sub> flux and carbon content in 12 soil pots with

varying moisture and temperature levels. Preliminary data suggest that the rate of decomposition increases with increases in both temperature and moisture, and moisture plays a larger role in decomposition rate than expected.

**Bio:** Corey is a junior working on her B.S. in environmental science systems. She plans on graduating in 2018, and after Le Moyne, she wants to get another B.S. in geology before going to graduate school. She would like to acknowledge Dr. Tanner for being an awesome advisor, Katie Markstein for being an awesome research partner, and her mom and dad for just being awesome in general. Katherine is a junior biochemistry major and environmental science systems minor. After completing her undergraduate degree she plans to pursue a master's degree or Ph.D. in climate science research. She would like to acknowledge Dr. Tanner for being a great advisor and Corey Palmer for being a great research partner.



2:45 - 3 p.m.

## NEW INSIGHTS AND CHALLENGES CONCERNING THE MOLECULAR CHARACTERIZATION OF THE CONGENITAL CRANIOFACIAL DISORDER, TREACHER COLLINS SYNDROME

Gianno Pannafino, biology

Faculty Mentor: Daniel Kane, Ph.D.

**Abstract:** Treacher Collins Syndrome (TCS) is a severe congenital craniofacial disorder characterized by underdevelopment of facial bones due to perturbed ribosome biogenesis from mutations to two essential RNA Polymerase (Pol) subunits, AC19 and AC40. Previous studies indicate these mutations disrupt AC19/40 dimerization and are Pol I specific. Our results suggest these mutations instead disrupt Pol I/III complex integrity and challenge the notion that TCS is a Pol I specific disease. This work was performed in the lab of Dr. Bruce Knutson at SUNY Upstate.



**Bio:** Gianno is a senior biology major. After graduation in spring 2017, he plans to attend graduate school to pursue a Ph.D. in biochemistry/molecular biology. Gianno would like to express his gratefulness for the opportunity to continue his 2015 SURF research project in the Knutson lab at SUNY Upstate. He is also extremely thankful for all the professors and mentors who have supported and cultivated his scientific curiosity throughout his undergraduate career.

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3 - 3:15 p.m.

## RELATIONSHIP OF TEMPERATURE ON THE TIMING OF BIRD MIGRATION

Corey Palmer, environmental science systems;  
Erica Mackey, environmental science systems

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Faculty Mentor: Donald McCrimmon, Ph.D.

**Abstract:** Biologists speculate that the timing of bird migration is shifting due to global climate change. We evaluated relationships between first recorded dates of bird species collected by the Forbush Bird Club in Massachusetts with temperatures in the Eastern U.S. First recorded dates are regressed against six main regions and their temperatures over time, with 27 of 47 species demonstrating a statistically significant relationship.



**Bio:** Corey is a junior environmental science system major. She plans to graduate in 2018 with her B.S., and then get another B.S. in geology before finally going to graduate school. She would like to acknowledge Dr. McCrimmon, Dr. Luscier, and Dr. Cunningham for being awesome research mentors, Erica Mackey for being an awesome research partner, and her mom and dad for being awesome in general. Erica is a junior environmental science systems major. She plans to graduate in 2018 with her B.S. and then continue in graduate school in conservation or environmental education. She would like to acknowledge Dr. McCrimmon, Dr. Luscier, and Dr. Cunningham for their hard work and guidance as mentors, and Corey Palmer for being a great research partner to work with.

3:15 - 3:30 p.m.

## CROSS-BORDER USAGE OF DRONES BY THE AMERICAN GOVERNMENT: ETHICAL AND POLITICAL IMPLICATIONS

Nanette McMahon-White, criminology

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Faculty Mentor: Anirban Acharya, M.A., A.B.D.

**Abstract:** In American foreign policy, the United States drone program has been highly controversial. In this paper the purpose of the research was to determine the ethical and political implications of cross border usage of drones and its effects on the American people. It also explores possible solutions for the issues faced by the current administration due to the program's controversial nature.



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**Bio:** Nanette will be graduating in May 2017 with a bachelor's degree in criminology (concentration in international relations) and a minor in psychology. She plans to continue her research, using it to fight for human rights for all people with the ultimate goal of enacting policy change.

3:30 - 3:45 p.m.

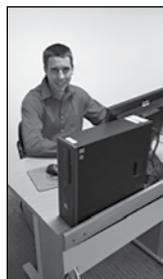
## MARBLEDALE ROAD BCP SITE

Jared Sheldon, chemistry pre-engineering

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Faculty Mentor: Donald Hughes, Ph.D.

**Abstract:** Data collected by an environmental consultant was organized by concentration and analyzed to determine if the levels of chemicals present – especially trichloroethylene, aromatic hydrocarbons and chlorofluorocarbons – at a BCP cite exceed accepted safety standards. The data was plotted and a concentration gradient map was made. Several chemicals present greatly exceeded the recommended safety standards, especially in the soil vapors.



**Bio:** Jared is a junior chemistry major who is planning on attending Syracuse University for chemical engineering. He would like to thank the Student Research Committee and the Ignite Fellowship program for helping make this opportunity possible.

3:45 – 4 p.m.

## TO BRAID OR NOT TO BRAID

Daniella Vazquez, mathematics

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Faculty Mentor: Jonathan Needleman, Ph.D.

**Abstract:** This senior research project looks into the world of braid theory by analyzing the game To Braid or Not to Braid. In this game two players, Bret and Umar, will take turns crossing strands. Bret will attempt to braid the strands, whereas Umar will attempt to unbraid them. Given a distinct set of strands, it has been determined that a specific player can win every time, if they play optimally.



**Bio:** Daniella is a senior majoring in pure mathematics and minoring in computer science. During the past four years, she has maintained two jobs, including a position in information technology. Daniella has recently come back from Ecuador, where she worked with low income families striving for a higher education. In the future, she plans to find a career she loves while continuing to volunteer.

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4:10 – 5:30 P.M. POSTER SESSION

## RELATIONSHIPS 101: A STUDY OF FIRST YEAR COLLEGE STUDENTS' PERCEPTIONS OF SEXUAL ASSAULT

Carrie Bates, psychology, theatre arts

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Faculty Mentor: Monica Sylvia, Ph.D.

**Abstract:** First year students were asked to review scenarios involving sexual assault that highlighted either the alcohol use, sexual orientation, or relationship status of the people involved. Although the majority of students agreed that sexual assault had occurred in each scenario, they were less confident in their decisions if the use of alcohol was emphasized.

**Bio:** After graduating in May, Carrie hopes to pursue a career in stage and production management for the theater. She has found her experience in psychology to be incredibly helpful in her professional theater career. Carrie would like to thank Dr. Monica Sylvia for her constant guidance and support throughout this entire process.



## AN INVESTIGATION OF DOUBLE-STRAND BREAKS CAUSED BY DRUG-INDUCED TRANSCRIPTION

Lee Bauter, biology

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Faculty Mentor: Daniel Kane, Ph.D.

**Abstract:** DNA double-strand breaks (DSBs) can be lethal for a cell. An endogenous cause of DSBs is collision between DNA replication and transcription machinery. We propose that cancer drug-specific chromosome fragility results from these collisions at sites of drug-induced transcription. To test this, using a yeast model system, we will map the DSB locations of three different genotoxic drugs and compare to their locations of transcription upregulation. This work was performed in the lab of Dr. Wenyi Feng at SUNY Upstate.

**Bio:** Lee is a senior biology major who will be graduating in May. He will be attending the College of Medicine at SUNY Upstate Medical University in August in the pursuit of becoming a physician. He would like to thank Dr. Feng of SUNY Upstate and Dr. Kane of Le Moyne College for all of their help and guidance over the last year.



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## MICROWAVE-INDUCED, PALLADIUM-CATALYZED DEHYDROGENATION OF CYCLOHEXANONES

Sarah Canarelli, chemistry

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Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** Palladium-catalyzed aerobic dehydrogenation of 4-tert-butyl cyclohexanone has been studied under traditional and microwave heating. The application of a novel catalyst in the aerobic dehydrogenation has also been investigated. The microwave-induced, palladium-catalyzed dehydrogenation method explored could be an effective dehydrogenation method as the starting materials are commercially available and microwave heating may allow the reaction to proceed at an increased rate. This method may find utility for complex cyclohexanones, which are incompatible with known dehydrogenation methods.



**Bio:** Sarah is a senior chemistry major from Rome, N.Y. After graduation, Sarah plans to continue her education in pursuit of a doctorate in chemistry.

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## IMPROVE LIFE WITHIN COMMUNITIES

Kara Capozza, criminology

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Faculty Mentor: Frank Ridzi, Ph.D.

**Abstract:** This research project is focused mainly on how philanthropy plays a very large role in providing a better life for minority groups.

**Bio:** Kara would like to thank Frank Ridzi as her advisor throughout completing the project. She also thanks her parents, sister, brother, boyfriend and housemates.

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## GEOGRAPHICALLY BASED PHILANTHROPIC FOUNDATIONS AND THE PROBLEM OF CRIME

Corinna Castiglia, criminology

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Faculty Mentor: Frank Ridzi, Ph.D.

**Abstract:** This study will investigate the work of local philanthropic foundations to address the problem of crime. Next to government funding, philanthropy is a leading funder of community efforts to solve social problems. The overall goal of this study will be to review relevant literature in scholarly journals and produce research findings based on a content analysis of foundation websites.

**Bio:** After graduating this spring with her degree in criminology, Corinna will be leaving for Air Force basic training where she will begin her security forces career in the military. She also plans on being in law enforcement in her civilian career as well.

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## DEVELOPMENT AND APPLICATION OF MICROSATELLITE MARKERS FOR SPECIES IDENTIFICATION AND HYBRIDIZATION TESTING IN TWO FISH SPECIES

Steven Ferguson, biology, Spanish

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Faculty Mentor: Devon Keeney, Ph.D.

**Abstract:** DNA microsatellite analysis allows for the identification of morphologically similar species that can be misidentified in the field. This project tests potential microsatellite markers, short tandemly repeated nucleotide motifs, for their use in identifying two species of fish collected from Illinois Rivers: black redhorse (*Moxostoma duquesnei*) and golden redhorse (*Moxostoma erythryrum*), and examines if hybridization is occurring between them.



**Bio:** Steven will be graduating in the winter of 2017 with degrees in biology and Spanish. After graduation, Steven plans to attend graduate school in conservation biology. He hopes to become a professor of biology and develop field-based research courses in Latin America. Steven would like to thank the Student Research Committee and the McDevitt Center for funding this project, as well as his mentor, Dr. Devon Keeney.

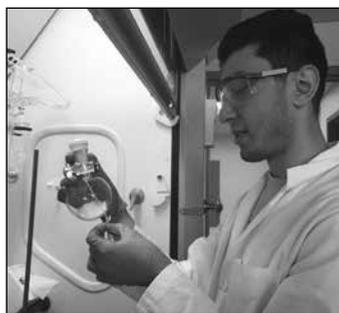
## SYNTHESIS AND CHARACTERIZATION OF A PINCER LIGAND

Rosario Giufre, chemistry

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

**Abstract:** Metal complexes serve as catalysts for polymerization reactions used to make products such as Plexiglas. My project seeks to develop new catalysts made up of a pincer ligand and a metal. A pincer ligand attaches to a metal at more than one site, providing a balance of stability and reactivity. In the first phase of my project, I am synthesizing a pincer ligand, bis[2-(3,5-dimethyl-1-pyrazolyl)-ethyl]amine.



**Bio:** Rosario is a chemistry major from Syracuse, N.Y. He plans on continuing his studies after graduation. Rosario would like to acknowledge Dr. O'Brien, Brian Wilson, and our collaborators at Syracuse University for their guidance throughout this project, as well as Devon Haugh for her help and input throughout the year.



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## SYNTHESIS OF 2,5-BIS (3,5-DIMETHYLPYRAZOLYLMETHYL) PYRROLE

Devon Haugh, chemistry

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

**Abstract:** This project is centered on the synthesis purification, and characterization of 2,5-bis (3,5-dimethylpyrazolylmethyl) pyrrole, which belongs to a class of compounds called pincer ligands. Pincer ligands are molecules that can bind to three different locations on a metal ion, and create a larger metal complex. Obtaining this ligand is the first phase of our research, and in future semesters it will be complexed to alkali and alkaline earth metals to synthesize new catalysts for polymerization reactions.



**Bio:** Devon is from Binghamton, N.Y., and is a junior chemistry major with minors in both mathematics and environmental science systems. She would like to thank Dr. O'Brien, Rosario Giufre and Brian Wilson for their help and guidance.

## MICROWAVE-PROMOTED SYNTHESIS OF NOVEL ALKYLATED CARBOCYCLIC CURCUMINOID DERIVATIVES AND SELECTIVE C-ALKYLATION & ALLYLATION OF 2-ACETYLCYCLOPENTANONE

Shania Hayward, chemistry

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Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** The research focused on the selective C-alkylation and allylation of cyclic ketones and on the synthesis of novel symmetric alkylated carbocyclic curcuminoid derivatives. Symmetric curcuminoid derivatives were synthesized via a boron-assisted aldol condensation reaction. A boron complex is formed to protect the cyclic diketone at the active methine, preventing Knoevenagel condensation. The research focuses on the synthesis of novel curcuminoid derivatives which exhibit increased bioavailability.



**Bio:** From upstate New York, Shania is a junior chemistry major at Le Moyne College. After Le Moyne, she plans to attend graduate school in order to pursue a doctorate degree in chemistry. She would like to thank Dr. Joseph Mullins for his mentorship and support and the McDevitt Center for providing a research fellowship for this project.

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## PREVALENCE OF *BORRELIA BURGENDORFERI* IN *IXODES SCAPULARIS* IN EAST SYRACUSE

Caleb Larnerd, biology

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Faculty Mentor: Patrick Yurco, Ph.D.

**Abstract:** Lyme disease is caused by the spirochete *Borrelia burgdorferi*, a bacteria spread in the Northeastern United States primarily by deer tick vectors – namely *Ixodes scapularis*. The selected amplification of bacterial DNA from ticks collected at Le Moyne College and local State Parks provides infection rate data per location. It is our hope to evaluate the risk of Lyme disease transmission in East Syracuse and increase awareness for the community.



**Bio:** Caleb is a senior biology major with minors in chemistry and psychology and a concentration in neurobiology, as well as a Semester at Sea alumnus. He plans to attend graduate school internationally in pursuit of biology research. Caleb would like to thank Dr. Yurco, Dr. Smith, and the Student Research Committee for their respective guidance and support.

## SEASONAL CARBON SEQUESTRATION AND BIOFUEL POTENTIAL OF COMMON REED (*PHRAGMITES AUSTRALIS*) IN A CONSTRUCTED WETLAND

Hunter LaRosa, biology

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Faculty Mentor: Blair Page, Ph.D.

**Abstract:** Reed or, *Phragmites australis*, is an invasive plant species that has established itself in wetlands worldwide. It can form dense patches of growth quickly, out-competing native flora. Being hard to remove once established, the focus of our research is to determine if *Phragmites* can be used as biofuel. This is done through determining seasonal carbon sequestration in *Phragmites* by chemical respiration of samples collected from the Le Moyne reservoir throughout the winter and spring.



**Bio:** Hunter is a sophomore Integral Honors student and is pursuing a bachelor's degree in biology with a concentration in health professions, as well as a minor in chemistry. He is deeply interested in practicing dentistry and plans on attending dental school in the future. He would like to thank his mentor Dr. Page for his help and guidance, the members of the Student Research Committee for their support, and the many others who have guided him along the way.

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## THE PATTERN OF BREATHING IN CONSCIOUS AND ISOFLURANE ANESTHETIZED MICE

Ashley Loeven, biology

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Faculty Mentor: Lara DeRuisseau, Ph.D.

**Abstract:** The gold standard for determining respiratory sufficiency is a conscious arterial blood sample to measure the partial pressure of carbon dioxide ( $\text{PaCO}_2$ ). However, this technique is challenging and limited in its success rate. To this end, we compared the  $\text{PaCO}_2$  of conscious mice compared to mice lightly anesthetized with isoflurane gaseous anesthesia and found similar results. To further verify our findings, we plan to compare the pattern of breathing in conscious and lightly anesthetized mice.



**Bio:** Ashley is a junior at Le Moyne College majoring in biology and minoring in chemistry. As a member of the Integral Honors Program, Ashley is using this research as the basis of her senior thesis. After graduating in May of 2018, she plans to earn her Ph.D. in biology. She would like to thank Dr. Lara DeRuisseau for her guidance, assistance, and mentorship.

## NHL TEAM STYLES AND WHAT DETERMINES SUCCESS

Sean Lyons, mathematics

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Faculty Mentor: Caitlin Cunningham, Ph.D.

**Abstract:** We examine the effect of play style on how a team performs in the NHL. To classify team styles, we used general linear models, linear regressions, and principal components to create mathematical models that were able to classify a team's style. When we used the results of the classification models, we found that a team's style does not strongly affect a team's success.



**Bio:** Sean is a senior mathematics major concentrating in statistics with a double minor in business analytics and history. He will be graduating in May and is planning a career in business statistics.

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## IDENTIFYING SITUATIONS OF MORAL DISTRESS AMONG OCCUPATIONAL THERAPY PRACTITIONERS IN THE PHYSICAL DISABILITY AND GERIATRIC PRACTICE SETTINGS

Page Moore, occupational therapy (M.S.); Samantha Painter, occupational therapy (M.S.); Gabrielle Santarelli, occupational therapy (M.S.)

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Faculty Mentor: Maureen Duncan, OTD, OTR/L

**Abstract:** This project utilized a survey (MDS-R-OT[A]) on social media, originally developed by Penny, Bires, Bonn, Dockery & Pettit, (2016), to explore situations



of moral distress as experienced by occupational therapists. The researchers added three follow-up questions to measure practitioner attitudes on moral distress. The results found that 21 situations had a statistically significant positive correlation and considering leaving a current or past position were predictors of moral distress.

**Bio:** The researchers, Page, Samantha and Gabrielle, are all currently in the final month of earning their Master of Science in occupational therapy degrees and will graduate in May. They would like to thank and acknowledge Dr. Maureen Duncan, OTD, for her mentorship and support throughout the research process. Page is from California and has completed clinical internships in both New York and California in a variety of settings with various populations, confirming her passion for serving the adult and geriatric populations. In the future, she hopes to practice OT in an adult/geriatric clinical setting, as well as potentially pursue academia to contribute to the future of the profession. Samantha, a Le Moyne undergraduate alumna, has completed clinical internships within both the populations of geriatrics and pediatrics, discovering she has a passion for both. In the future, she hopes to become a professor in order to share her love of the profession with others. Gabrielle has completed clinical internships within various populations, acquiring a strong passion for pediatrics and hand therapy. In the future, she hopes to obtain her certification in hand therapy and continue her love for the profession.

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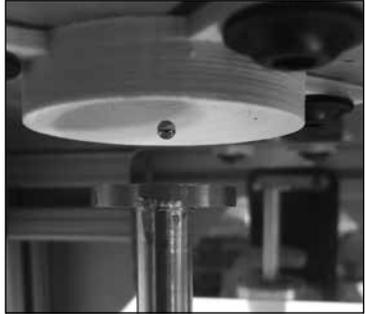
## DESIGN OF AND EXPERIMENTATION WITH AN ACOUSTIC LEVITATOR

John Morrison, physics

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Faculty Mentor: Stamatios Kyrkos, Ph.D.

**Abstract:** Based on the work of Grant Farrokh at Le Moyne College in 2014, we built a lab-ready acoustic levitator operating at a resonant frequency of 27.5 kHz. Furthermore, we tested the hypothesis of Xie and Wei, that reflector shape can be optimized to improve levitation capabilities, by experimenting with computer designed and 3d-printed reflectors.



**Bio:** John is a senior at Le Moyne, and is pursuing a bachelor's degree in physics as well as a minor in mathematics. He has been accepted into the University of Hartford and will continue his studies there in the summer of 2017 in hopes of eventually becoming a certified prosthetist/orthotist. He would like to thank Dr. Stamatios Kyrkos, Dr. Christopher Bass, Grant Farrokh, and the members of the Le Moyne Maker's Club for their help with this project.

## CHARACTERIZATION OF PHOTOMULTIPLIERS FOR USE IN A FAST NEUTRON SPECTROMETER

Joshua Sands, physics, pre-mechanical engineering

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Faculty Mentor: Christopher Bass, Ph.D.

**Abstract:** We are developing a fast neutron spectrometer based on lithium-loaded liquid scintillator. The design of our prototype detector requires 2.5 liters of scintillator fluid, which necessitates the use of eight photomultipliers that have good light collection, linearity, and low noise. The goal of the research was to characterize these photomultipliers using measured energy spectra from gamma ray sources.

**Bio:** Joshua is a junior in the 4+1 program for a master's in mechanical engineering at Syracuse University.

## THINKING ABOUT ODOR SENSITIVITY

Jenna Seifert, psychology

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Faculty Mentor: Theresa White, Ph.D.

**Abstract:** The purpose of this experiment was to investigate the relationship between attention and the different sensory systems that compete for it, such as the olfactory and auditory systems. Participants experienced either scary music, happy music, or no music conditions while completing an olfactory threshold task.





After completing the tasks, the participants were asked to complete the Eysenck Personality Inventory measuring the personality traits of Extroversion and Neuroticism. The interaction between threshold levels, music and personality traits was analyzed using an ANOVA.

**Bio:** Jenna will be graduating this May with a bachelor's degree in psychology and a minor in music. She plans on working with kids as a teaching assistant while preparing for graduate school in the future.

### GENERATION OF TRANSGENIC ZEBRAFISH EXPRESSING pA<sub>Sh</sub>1 AT/DTOMATO FOR THE STUDY OF REGENERATION AND DEVELOPMENT OF THE CENTRAL NERVOUS SYSTEM

Heidi Stahl, biology

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Faculty Mentor: Patrick Yurco, Ph.D.

**Abstract:** Zebrafish have the ability to regenerate parts of the CNS; specifically, we focus on regeneration of the retina and the mechanisms involved. The study focuses on creating transgenic organisms containing the proneural gene, pA<sub>Sh</sub>1, and genes of the Notch signaling pathway to investigate and understand their function in development and regeneration of zebrafish retina.



**Bio:** Heidi is a senior majoring in biology and minoring in English, psychology, and chemistry. She is attending Binghamton University after graduation. She is thankful to have had the opportunity to participate in research and for all the help Dr. Yurco has provided in the last year and a half.

### GENDER BIAS AND STIGMA ASSOCIATED WITH PSYCHOLOGICAL DISORDERS

Jenna Togni, psychology

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Faculty Mentor: Krystine Batcho, Ph.D.

**Abstract:** For non-professionals, this study addressed the question: "Do people view the same changes in behavior differently when they are exhibited by a man or by a woman?" Participants rated behavioral changes in hypothetical scenarios. The character gender was manipulated in a between-subjects design. The gender of the participant influenced responses more than character gender.



**Bio:** Jenna is a senior psychology major at Le Moyne College. She aspires to become a licensed clinical social worker. Once achieved, she would like to contribute to the legal system by carrying out forensic assessment.

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## TRANSLATIONAL USE OF HOST CELL STRESS GRANULES BY REOVIRUS

Megan Worth, biology

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Faculty Mentor: Emily Ledgerwood, Ph.D.

**Abstract:** Reoviruses are oncolytic viruses that have shown promise in clinical trials due to their ability to selectively destroy cancer cells. The mechanism for this ability is not yet understood. Unlike normal cells, cancer cells form stress granules (SGs) that contain proteins used by reovirus for replication. To determine whether the presence of SGs in host cells enables more efficient reovirus replication, SGs were artificially induced and infectivity was determined using immunofluorescent microscopy and plaque assay.



**Bio:** Megan is a junior biology major with a concentration in neurobiology. She plans on pursuing a Ph.D. in either microbiology or astrobiology following her graduation from Le Moyne in the spring of 2018. Megan would like to thank Dr. Ledgerwood for her mentorship and support. She would also like to thank the Department of Biological and Environmental Sciences and the Student Research Committee.

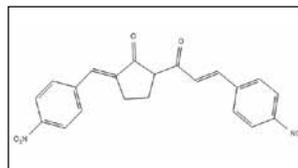
## MICROWAVE SYNTHESIS OF CURCUMIN ANALOGS

Francine Yanchik, biochemistry

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Faculty Mentor: Joseph Mullins, Ph.D.

**Abstract:** Microwave-promoted synthesis of curcumin analogs that contained either a five or six membered cyclic ketone as the base. Aldehydes with varying properties were added on to these cyclic ketones to determine the efficiency of microwave synthesis for these specific compounds. Different variables were changed to determine the condition where the purest product was formed.



**Bio:** Francine aspires to continue doing research through pursuing a M.D./Ph.D. degree. This would allow her to continue pursuing medicine while also conducting research. She would like to thank Dr. Mullins for giving her this wonderful opportunity to conduct research.



## COVER BOARD BIODIVERSITY IN PROXIMITY TO WALKING TRAILS

Waldemar Zawadzki, biology

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Faculty Mentor: Jason Luscier, Ph.D.

**Abstract:** Hiking paths can greatly affect forest understory biodiversity. We sampled animal biodiversity under cover boards placed 1 m, 6 m, 11 m, and 16 m away from a trail in the Le Moyne woods. We found two snakes at 11 m from the trail, 11 mice total at 6 m, 11 m and 16 m from the trail, and multiple invertebrate taxa. Overall, biodiversity seemed highest at board 6 m from the trail supporting the notion that paths affect biodiversity.



**Bio:** Waldemar is a biology major at Le Moyne College graduating with the Class of 2017. He has a passion for reptiles, and collects them as a hobby. Future plans include working for the government on conservation projects. His ultimate goal is to open a reptile zoo in the name of his late father, Paul Zawadzki.



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

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## MISSION STATEMENT

Le Moyne College is a diverse learning community that strives for academic excellence in the Catholic and Jesuit tradition through its comprehensive programs rooted in the liberal arts and sciences. Its emphasis is on education of the whole person and on the search for meaning and value as integral parts of the intellectual life. Le Moyne College seeks to prepare its members for leadership and service in their personal and professional lives to promote a more just society.