

SCHOLARS DAY 2016

A Celebration of Student Scholarship

FRIDAY, APRIL 15, 2016

8 A.M. – 5:15 P.M.

JAMES COMMONS AND CURTIN SPECIAL EVENTS ROOM
CAMPUS CENTER

LE MOYNE

SPIRIT. INQUIRY. LEADERSHIP. *JESUIT.*

ABOUT SCHOLARS DAY

Welcome to the 11th annual Le Moyne College Student Scholars Day, a tradition that started with the Undergraduate Research Symposium in 1998. Scholars Day 2016 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 45 students representing 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 Rachel Carey '11 to campus. Rachel is currently pursuing her doctorate in chemistry at the University of Rochester and will speak during the lunch break. Please join us for food and drinks during the poster session directly following our afternoon talks.

Devon Keeney, Ph.D.

Associate Professor of Biological Sciences and Chair of the Student Research Committee

FROM THE PRESIDENT

Congratulations and welcome to all of our student scholars for your exemplary commitment to intellectual achievement!

Additionally, I add my thanks to the friends and family who 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. Through this process, you have learned how knowledge is constructed, and how critical tolerance and patience are in surmounting the many challenges inherent in research. Again, I am deeply grateful to my faculty colleagues for sharing the joy of discovery and the delight of intellectual challenges with you.

Congratulations and welcome to the scholarly community!

Linda M. LeMura, Ph.D.

President

FROM THE PROVOST

Today's showcase of undergraduate research and scholarly work at Le Moyne College underlines the achievements of our students, the dedication of their faculty mentors, and Le Moyne's commitment to academic excellence. The honorees in this ceremony, the College's undergraduate student-scholars, are joining one of humanity's great ongoing projects – the extension of knowledge and understanding. We honor them not only for their intelligence and ambition, but also for their collaboration within this tradition. Thus we acknowledge them as colleagues as well as students. Thanks for joining us in this celebration of scholarship.

*Thomas Brockelman, Ph.D.
Interim Provost and Vice President for Academic Affairs*

FROM THE DEAN OF THE COLLEGE OF ARTS AND SCIENCES

Welcome to Scholars Day, Le Moyne's annual celebration of some of our most ambitious and talented students. 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 into 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!

Best wishes.

*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 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 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

SCHEDULE OF EVENTS

- | | |
|--------------------|--|
| 8 – 9:30 a.m. | CONTINENTAL BREAKFAST |
| 8:15 – 8:30 a.m. | WELCOMING REMARKS
Devon Keeney, Ph.D.
<i>Associate Professor of Biological Sciences and
Chair of the Student Research Committee</i>
Theresa L. White, Ph.D.
<i>Professor of Psychology
2015-16 Le Moyne College 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
Rachel Carey '11
<i>Graduate Student at the University of Rochester</i> |
| 12:45 – 3:45 p.m. | AFTERNOON PRESENTATION SESSIONS |
| 3:45 – 3:55 p.m. | CONCLUDING REMARKS FOR ORAL SESSIONS
Robert E. Scully, S.J.
<i>Professor of History, 2015-16 Le Moyne College Scholar of the Year</i> |
| 4 – 5:15 p.m. | POSTER SESSION AND CLOSING RECEPTION
Beer and wine, hors d'oeuvres |

SCHEDULE OF SESSIONS

MORNING SESSION

- 8:30 – 8:45 a.m. Gender Biases in Internal Medical Diagnostics
Nicholas Olin, chemistry, psychology
- 8:45 – 9 a.m. The Fundamental Component: Humans
Jonathan Martial, political science
- 9 – 9:15 a.m. Generation of Transgenic Zebrafish for the Study of Regeneration and Development of the Central Nervous System
Andrew Tynon, biological sciences
- 9:15 – 9:30 a.m. Attachment Disorder in Literature: Content Analysis of Rowling's *Boy Who Lived*
Vivian Phan, psychology, biological sciences
- 9:30 – 9:45 a.m. Mobile Offshore Infrastructure
Steven Middleton, marketing, information systems
- 9:45 – 10 a.m. Politics and the Olympic Games as Seen in the 1968 Mexico City Olympics
Dominik Maida, history, political science
- 10 – 10:15 a.m. Do Directors Dream of Giant Lizards? How Technology is Used in Science Fiction to Tell a Cautionary Tale of Global Conflicts and Advancing Technologies
Benjamin Verdi, history
- 10:15 – 10:30 a.m. Representation of African-American Women on Primetime Television
Ayana Johnson, communication and film studies
- 10:30 – 10:45 a.m. Design of a Fast Neutron Spectrometer for Measuring Background Radiation
Joseph Shupperd, physics
- 10:45 – 11 a.m. Tug of War: Identity and Triple Consciousness in Women of Color
Kadijah McKenzie, psychology
- 11 – 11:15 a.m. Invasion: Alien Films and America's Fear of the Other
Abigail Dull, sociology
- 11:15 – 11:30 a.m. The Use of MCNP Simulations in Fast Neutron Spectrometry
Ryan Bonk, physics
- 11:30 – 11:45 a.m. Somali, Somali-Bantu, and Kizigua Refugee Women's Health Care Access and Utilization: Overcoming Barriers
Zacharia Mohamed, biological sciences
- 11:45 a.m. – Noon More than a Transaction: Building a Community in the Asian Markets on the Northside of Syracuse, NY
Melissa McGovern, sociology
- NOON – 12:45 p.m. LUNCH
- 12:10 – 12:45 p.m. GUEST SPEAKER RACHEL CAREY '11

SCHEDULE OF SESSIONS

AFTERNOON SESSION

- 12:45 – 1 p.m. Anarkhocracy: Trap Music, Dungeons and Dragons, and Bureaucracy
Miguel Goodlin-Saenz, criminology, political science, peace and global studies
- 1 – 1:15 p.m. Knowledge of Labor Returns and the College Major Choice
Lucas Greer, economics
- 1:15 – 1:30 p.m. With Funding and Justice for All: A Global Analysis of Education Funding and its Effects on Educational Outcomes
LeeAnne Pedrick, political science
- 1:30 – 1:45 p.m. Changes of Spring Observation Dates of New York and Massachusetts Migrating Birds
Anna Valentine, environmental science systems; Daniel Bolster, environmental science systems
- 1:45 – 2 p.m. Perceptions of Illness: Sexism in Health Care
Brianna Natale, psychology, biological sciences
- 2 – 2:15 p.m. National Park Use: The Effect of Socioeconomic Inequality on Minority Park Attendance
Allison Dolzonek, political science, environmental studies
- 2:15 – 2:30 p.m. Beyond Planets
Felicia Sciortino, mathematics
- 2:30 – 2:45 p.m. The Diversity of the Freshwater, Green Algal Genus Hydrodictyon (Chlorophyta, Sphaeropleales)
Nicholas Macoretta, biological sciences
- 2:45 – 3 p.m. Literacy Initiatives in Onondaga County
Eileen Ploetz, sociology
- 3 – 3:15 p.m. Predicting Syracuse University Men's Basketball Games
Sean Love, business analytics, finance
- 3:15 – 3:30 p.m. Benchmarking Density Functionals for Optical Rotation Calculations
James Gayvert, chemistry, computer science
- 3:30 – 3:45 p.m. Discovering the Diversity of Anhydrobiotic Tardigrades in Onondaga County, New York
Tiffany Meador, biological sciences
- 4 – 5:15 p.m. **POSTER SESSION & CLOSING RECEPTION**
BEER AND WINE, HORS D'OEUVRES

ABSTRACTS, FACULTY MENTORS, AND BIOGRAPHIES: STUDENT SCHOLARS RESEARCH AND POSTER PRESENTATIONS

8:30 – 8:45 a.m.

GENDER BIASES IN INTERNAL MEDICAL DIAGNOSTICS

Nicholas Olin, chemistry, psychology

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

Abstract: This research project explores gender biases as they exist in internal medical diagnostics and practices. Emphasis was placed on the roles existing studies, clinical practices, and our fundamental understanding of sex and gender play in causing gender bias. The significance of gender bias was illustrated by Foucault's *The Birth of the Clinic*. The primary research method employed was a review of the literature on medical diagnostics and practices from 2000-2015.



Bio: Nicholas Olin is majoring in chemistry and psychology and is a member of the Integral Honors Program. He is graduating in the spring and will be attending the University of Rochester School of Medicine in the fall. At Le Moyne College he has worked with Dr. Ludger Viefhues-Bailey, Dr. Anthony Vinciguerra, and Dr. Holly Rine.

8:45 – 9 a.m.

THE FUNDAMENTAL COMPONENT: HUMANS

Jonathan Martial, political science

Faculty Mentor: Martha Grabowski, Ph.D.

Abstract: There are myriad obstacles faced by operators out in the Arctic and even more by those on missions that prove to be detrimental to the noble cause of saving lives. This literature review will aim to tackle these issues as well as give some insight on how things can change and get better for the foreseeable future.



Bio: Jonathan Martial wishes to thank Dr. Martha Grabowski for giving him this opportunity to do something good for the world. Jonathan hopes to one day live in Tokyo and to head the cybersecurity department of Sony.

9 – 9:15 a.m.

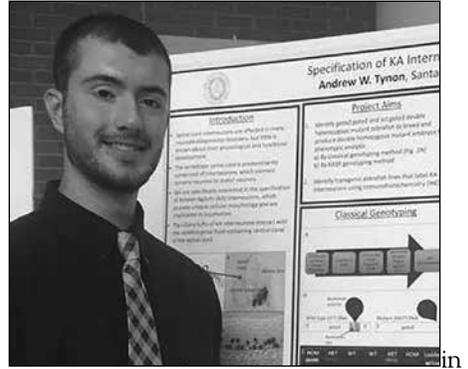
GENERATION OF TRANSGENIC ZEBRAFISH FOR THE STUDY OF REGENERATION AND DEVELOPMENT OF THE CENTRAL NERVOUS SYSTEM

Andrew Tynon, biological sciences

Faculty Mentor: Patrick Yurco, Ph.D.

Abstract: Our research is focused on studying the genetic mechanisms involved in development and regeneration of the vertebrate retina. The generation of transgenic zebrafish will allow us to better understand the function and expression patterns of certain developmentally critical genes, subsequently improving our knowledge of retinal development and recovery in zebrafish. Ultimately, this could help elucidate the mechanism by which certain vertebrates, such as zebrafish, can regenerate their CNS, potentially leading to applications in regenerative medicine.

Bio: Andrew Tynon plans to graduate from Le Moyne in the spring of 2016 with a bachelor's degree in biological sciences and minors in chemistry, philosophy and psychology. Following graduation, he aspires to attend medical school. Andrew would like to give special thanks to Dr. Patrick Yurco, for his long-standing mentorship and support; the McDevitt Center, for providing a fellowship for this project; and everyone else who has helped and supported him, especially his family, friends and professors.



9:15 – 9:30 a.m.

ATTACHMENT DISORDER IN LITERATURE: CONTENT ANALYSIS OF ROWLING'S *BOY WHO LIVED*

Vivian Phan, psychology, biological sciences

Faculty Mentor: Cathy Leogrande, Ph.D.

Abstract: This project explored the ways Harry Potter's childhood abandonment, due to the death of his parents, has affected his relationships throughout J.K. Rowling's *Harry Potter* series. The project examined changes in his psychological attachment style over the seven books. My research was based on the theory of attachment styles particularly in regard to John Bowlby and Mary Ainsworth's work, critical psychological analysis essays on the *Harry Potter* series, scholarly studies regarding the series, and Rowling's novels.



Bio: Vivian Phan is a senior majoring in psychology and biological sciences. She would like to thank Dr. Cathy Leogrande and Dr. Christine Michaelson as she has greatly benefited from their mentoring.

9:30 – 9:45 a.m.

MOBILE OFFSHORE INFRASTRUCTURE

Steven Middleton, marketing, information systems

Faculty Mentor: Martha Grabowski, Ph.D.

Abstract: In the ever-changing Arctic landscape, how can the Coast Guard maintain its protection and service? The loss of sea ice has brought challenges that the Coast Guard has never before seen.



How will they adjust to the possible increase in shipping traffic and human exploration? By using new inventions and innovations they will be able to accomplish this very challenging feat.

Bio: Steven Middleton is excited to graduate this May and is both anxious and eager to start his career. With the knowledge learned from this wonderful curriculum and the professors at Le Moyne, he has created a great foundation that will serve him for the rest of his life. He also wishes to thank Dr. Grabowski and Dr. Ierlan for all of their help.

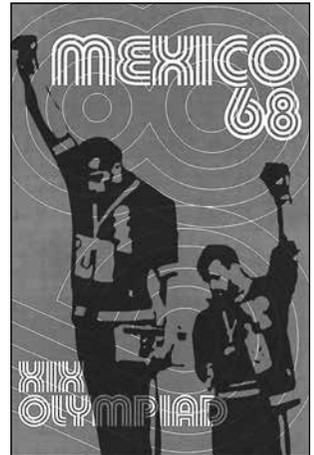
9:45 – 10 a.m.

POLITICS AND THE OLYMPIC GAMES AS SEEN IN THE 1968 MEXICO CITY OLYMPICS

Dominik Maida, history, political science

Faculty Mentor: Bruce Erickson, Ph.D.

Abstract: Politics and the Olympic Games are difficult to separate. Between national rivalries, opening ceremonies, the selection of host cities by the International Olympic Committee (IOC), and political movements, the Olympics present the stage for much more than simply athletic competition. 1968 was a year filled with turmoil and change. The 1968 Mexico City Olympics was a cornerstone for student revolts in Mexico as well as a spark for the Black Power Movement in the United States. Such overlap



between social and political movements and the hosting of the Olympic Games is continuously seen in more recent Games.

Bio: Dominik Maida is a senior at Le Moyne College majoring in history and political science and minoring in legal studies and philosophy. Dominik enjoys discussing politics and is an avid runner. He will be attending law school in the fall.

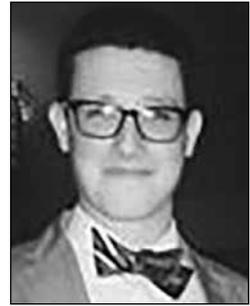
10 – 10:15 a.m.

DO DIRECTORS DREAM OF GIANT LIZARDS? HOW TECHNOLOGY IS USED IN SCIENCE FICTION TO TELL A CAUTIONARY TALE OF GLOBAL CONFLICTS AND ADVANCING TECHNOLOGIES

Benjamin Verdi, history

Faculty Mentor: Leigh Fought, Ph.D.

Abstract: Each of the six films analyzed in this project (*Metropolis*, *Things to Come*, *Godzilla*, *Alien*, *Star Wars Episode V* and *Blade Runner*), offers a cautionary tale of technological advancements, especially those used in war. Each addresses the inherent risks of using technology, how it causes issues within the film and how the protagonists use the same technology to solve the issue(s). Then, the films share similarities with each other, despite referencing different times in the 20th century.



Bio: Benjamin Verdi is a history major and dual minor in film and music, and plans on pursuing a graduate degree in arts administration. Benjamin is a member of the varsity swimming team, jazz ensemble and orientation committee. He would like to thank his mentor, Dr. Leigh Fought, and the Integral Honors Program for the opportunity to pursue this project.

10:15 – 10:30 a.m.

REPRESENTATION OF AFRICAN-AMERICAN WOMEN ON PRIMETIME TELEVISION

Ayana Johnson, communication and film studies

Faculty Mentor: Michael Streissguth, Ph.D.

Abstract: This research focused on four different stereotypes that have been portrayed in Hollywood since the creation of film in the 1950s. The evolution of the four stereotypes: Magical Negro, Mammy, Jezebel and Sapphire, have evolved and are still represented in African-American women in today's media. Olivia Pope from the hit ABC series *Scandal* was the character of



focus. Her character represents all four of those stereotypes on primetime television.

Bio: Ayana Johnson is a senior at Le Moyne who is originally from the Bronx. She will be attending Long Island University in the fall to pursue a master's degree in public administration.

10:30 – 10:45 a.m.

DESIGN OF A FAST NEUTRON SPECTROMETER FOR MEASURING BACKGROUND RADIATION

Joseph Shupperd, physics

Faculty Mentor: Christopher Bass, Ph.D.

Abstract: For direct detection of WIMP dark matter particles, fast neutrons pose a problem. An in situ measurement of the fast neutron fluence and energy spectrum could enable simulations of the expected fast neutron signal in dark matter detectors, thereby increasing the sensitivity of these searches. We discuss our fast neutron spectrometer research program and our efforts to design and construct a spectrometer for use in support of dark matter searches.

Bio: Joe Shupperd is a physics major with a minor in mathematics. Joe has earned a McDevitt Fellowship for his work on this project.

His future plans include going to graduate school for his doctorate in physics. He would like to thank Dr. Christopher Bass and the rest of the physics department for their support.



10:45 – 11 a.m.

TUG OF WAR: IDENTITY AND TRIPLE CONSCIOUSNESS IN WOMEN OF COLOR

Kadijah McKenzie, psychology

Faculty Mentor: Elizabeth Hayes, Ph.D.

Abstract: Colorism, discrimination based on the social meanings attached to skin color, is especially damaging to women of color in the U.S. By internalizing both the white gaze and the male gaze, they learn to see their bodies as problematic, ugly, worthless and fetishized. My thesis utilizes philosophy and literature to explore the effects of colorism on women of color in the U.S. with the goal of empowering them to overcome colorism, racism and sexism.

Bio: Kadijah McKenzie is a senior psychology major in the Integral Honors Program. Following graduation, she will be participating in the Snow-Le Moyne Honors Global Internship for five weeks in El Salvador. Upon her return, she plans to attend graduate school and to earn a master's degree in social work with a concentration in forensics.



Kadijah would like to give a special thanks to Dr. Elizabeth Hayes for her continuous guidance and support, Dr. Tabor Fisher for her wonderful insights and assistance, and everyone else at Le Moyne who has helped and supported her.

11 – 11:15 a.m.

INVASION: ALIEN FILMS AND AMERICA'S FEAR OF THE OTHER

Abigail Dull, sociology

Faculty Mentor: Phil Novak, Ph.D.

Abstract: This project is a content analysis of alien invasion science fiction films and the socio-historical context in which they were created. In particular, it focuses on films made in the post-WWII/Cold War Era. In these films, aliens are used in place of “the other” and were a way for the viewer to abstractly process their fears of invasion.

Bio: Abigail Dull is a senior sociology major. She plans on pursuing a Master of Business Administration in human resources information systems. She would like to thank Dr. Phil Novak, Dr. Darryl Caterine, and Dr. Farha Ternikar for helping her in developing this project.



11:15 – 11:30 a.m.

THE USE OF MCNP SIMULATIONS IN FAST NEUTRON SPECTROMETRY

Ryan Bonk, physics

Faculty Mentor: Christopher Bass, Ph.D.

Abstract: In physical experiments in search of rare phenomena such as dark matter events, background interference such as that caused by fast neutrons is a significant factor. This background level of fast neutrons can be characterized through the use of fast neutron spectrometry, therefore allowing researchers to separate out these events. We discuss our research in fast neutron spectrometry including the use of Monte Carlo N-Particle (MCNP) simulations to design and analyze a spectrometer capable of use in dark matter experiments.

Bio: Ryan Bonk is a physics major with a concentration in mechanical engineering, and the president of the Engineering Club. After graduating from Le Moyne this spring, Ryan will be going on to Syracuse University in pursuit of a master's degree in mechanical engineering in the fall.



11:30 – 11:45 p.m.

SOMALI, SOMALI-BANTU, AND KIZIGUA REFUGEE WOMEN'S HEALTH CARE ACCESS AND UTILIZATION: OVERCOMING BARRIERS

Zacharia Mohamed, biological sciences

Faculty Mentor: Godriver Odhiambo, Ph.D.

Abstract: This research investigated the health care access and utilization of Somali, Somali-bantu, and Kizigua refugee women in Syracuse, New York. This study aimed to better understand the barriers to health care access and utilization.

Bio: Zacharia Mohamed is a senior at Le Moyne College majoring in biology with a philosophy minor. He is in the process of applying for medical school. He is very thankful to Dr. Godriver Odhiambo, Dr. Holly Rine, and Dr. Darius Makuja for all their encouragement and support.



11:45 – Noon

MORE THAN A TRANSACTION: BUILDING A COMMUNITY IN THE ASIAN MARKETS ON THE NORTHSIDE OF SYRACUSE, NY

Melissa McGovern, sociology

Faculty Mentor: Farha Ternikar, Ph.D.

Abstract: This research looks at the significance of the refugee-owned Asian ethnic markets on the Northside of Syracuse, N.Y. The history of the ethnic markets on the Northside of Syracuse is closely related to the cycles of immigrants who have settled there over the years. For this project I interviewed six Southeast Asian shop owners along with 20 customers, working with individuals of Burmese, Bhutanese, Karen, Thai, and Laotian nationalities.

Bio: Melissa McGovern is a senior sociology and anthropology student. Her research interests include ethnography of refugee communities, ethnic food markets, nationalism and issues of cultural and ethnic identity.



12:10 – 12:45 p.m.

GUEST SPEAKER

Rachel Carey '11

Rachel graduated from Le Moyne College in 2011 *summa cum laude* with a Bachelor of Science in chemistry, a Bachelor of Arts in physics, and a minor in French. While at Le Moyne, she conducted research with Anna O'Brien, Ph.D., in the chemistry department and participated in a National Science Foundation Research Experience for Undergraduates summer project at Syracuse University. As an undergraduate, Rachel exemplified the Jesuit ideal of “men and women for others” by serving as a tutor in the Academic Support Center and the chemistry and physics department. She also traveled to Ecuador, Kenya, Philadelphia and West Virginia through Campus Ministry’s Alternative Break programs. Upon graduation, she continued her commitment to service as a full-time volunteer with the Sisters of St. Joseph Mission Corps and Franciscan Volunteer Ministry. Rachel is currently pursuing her doctorate in chemistry at the University of Rochester with a concentration in theoretical chemistry. She conducts research modeling single molecule pulling coupled to electron transport. After graduation, Rachel hopes to conduct research and teach at a primarily undergraduate institution.



12:45 – 1 p.m.

ANARKHOCRACY: TRAP MUSIC, DUNGEONS AND DRAGONS, AND BUREAUCRACY

Miguel Goodlin-Saenz, criminology, political science, peace and global studies

Faculty Mentor: Jon Carter, Ph.D.

Abstract: This project examines the works of Michel Foucault and David Graeber within the context of power, institution, and bureaucracy. The first section examines the relationship between power and classical institution, before going on to analyze the role that bureaucratization plays within modern institution. Finally, the third section examines the ways in which modern bureaucracy has transcended institution, embedding itself in every aspect of our lives.



Bio: Miguel Goodlin-Saenz is a senior in the Integral Honors Program with majors in criminology, political science, and peace and global studies. He has traveled to Guatemala multiple times through the Honors Program, as well as participated in the Cristosal-John Ben Snow Foundation internship in San Salvador, El Salvador.

1 – 1:15 p.m.

KNOWLEDGE OF LABOR RETURNS AND THE COLLEGE MAJOR CHOICE

Lucas Greer, economics

Faculty Mentor: Wayne Grove, Ph.D.

Abstract: Due to growing student loan debt and the uncertainty of job market prospects for recent graduates, the college major choice has become an important inquiry for social scientists. Previous research has analyzed the role of expected earnings on the college major choice. However, this research is conducted under the assumption of perfect information, where students are aware of accurate labor market returns of college majors. Related research on students' expectations of earnings have consistently found this to be untrue, as students tend to overestimate median earnings. This study examines the relationship between students' knowledge of median earnings and the choice of college major. Do students who choose low earning majors place little value on the importance of expected earnings, or are they overestimating the earnings they are likely to make?

Bio: Lucas Greer is a senior economics major with a minor in mathematics. Throughout his time at Le Moyne, he has remained active in the W. Carroll Coyne Center for the Performing Arts, serving as the executive director of Major Arcana, the student theatre company. Following graduation, Lucas will be pursuing a doctorate in economics at a university yet to be determined. He would like to thank Dr. Wayne Grove for his guidance, as well as the Student Research Committee for funding this study.

1:15 – 1:30 p.m.

WITH FUNDING AND JUSTICE FOR ALL: A GLOBAL ANALYSIS OF EDUCATION FUNDING AND ITS EFFECTS ON EDUCATIONAL OUTCOMES

LeeAnne Pedrick, political science

Faculty Mentor: Matt Loveland, Ph.D.

Abstract: This research examines the relationship between federal funding and educational outcomes to determine if more spending on education leads to successful education systems. To test this, data on enrollment rates, literacy rates, and test scores for sixty different countries were then compared against the funding allotments of those countries on programs like defense and health care. This research can be used to propose a better plan for federal spending on education in the United States.

Bio: LeeAnne Pedrick spent her four years at Le Moyne majoring in political science and minoring in history, legal



studies, and philosophy while also being president of the Pre Law Society and vice president of CARE, Amnesty International, and a founding member of the Pheminists. She hopes to attend law school to study advocacy and human rights law. She would like to thank her mentor, Dr. Matt Loveland, her second reader, Dr. Diane Zigo, and director of the Integral Honors Program, Dr. Holly Rine, as well as her friends and family for supporting her research.

1:30 – 1:45 p.m.

CHANGES OF SPRING OBSERVATION DATES OF NEW YORK AND MASSACHUSETTS MIGRATING BIRDS

Anna Valentine, environmental science systems;

Daniel Bolster, environmental science systems

Faculty Mentor: Donald McCrimmon, Ph.D.

Abstract: As reported at Scholars Day in 2015, our research has documented that records of spring migrants have been significantly progressively earlier in both New York and Massachusetts over the past 111 years. Our current studies focus on differences in observation dates of short- vs long-distance migrants, as well as the potential impacts of arrival before food resources are optimally available.

Bio: Anna Valentine is a senior environmental science major with a minor in biological sciences at Le Moyne College. She is a McDevitt Scholar who has worked on undergraduate research while obtaining her bachelor's. Her future plans include pursuing a master's in public health concentrating on environmental health and public policy.

Daniel Bolster is an environmental science systems major, chemistry minor, philosophy minor and a senior at Le Moyne College. He is a McDevitt Scholar who embraces research and difficult courses on his pathway to graduate school. He is pursuing degrees at multiple graduate schools in the environmental field and enjoys what he is taking at Le Moyne. His future plans include deepening his knowledge of the environmental field to find a job in government research, perhaps with the Environmental Protection Agency.

1:45 – 2 p.m.

PERCEPTIONS OF ILLNESS: SEXISM IN HEALTH CARE

Brianna Natale, psychology, biological sciences

Faculty Mentor: Shawn Ward, Ph.D

Abstract: The project closely examines the stigmatization of mental illness and the roles gender stereotypes and sexism play in our society’s view of what “illness” means. Information was gathered on Le Moyne students’ perceptions of both physical and mental illness, and their feelings regarding women and men with each type of illness respectively. Through illuminating the reasons behind negative attitudes toward mental illness, it is hoped that sexist social constructs perpetuating this stigma can be changed.



Bio: Brianna Natale is a senior majoring in psychology and biological sciences and will pursue a master’s in behavioral science research following graduation. She would like to thank Dr. Shawn Ward and Dr. Tabor Fisher for their mentorship as well as the Integral Honors Program, led by Dr. Holly Rine, and the Student Research Committee for supporting this project.

2 – 2:15 p.m.

NATIONAL PARK USE: THE EFFECT OF SOCIOECONOMIC INEQUALITY ON MINORITY PARK ATTENDANCE

Allison Dolzonek, political science, environmental studies

Faculty Mentor: Matthew Loveland, Ph.D.

Abstract: There is an indisputable disparity in minority national park use within America. The work done in this paper attempts to gauge whether or not socioeconomic inequalities within minority communities can be considered a significant variable contributing to this phenomenon. Without understanding why minority demographics attend national parks at such an inconsequential rate, correcting the anomaly will never be possible.



Bio: Allison Dolzonek is a senior majoring in political science and environmental studies. After graduation she plans to forward her education and to eventually gain meaningful employment with the National Park Service as an outdoor recreational programmer and manager. Allison would like to thank Dr. Matthew Loveland for his guidance and mentorship on this project, Dr. Sherilyn Smith for her edits and instructions, and Dr. Holly Rine, the chair of the Integral Honors Program.

2:15 – 2:30 p.m.

BEYOND PLANETS

Felicia Sciortino, mathematics

Faculty Mentor: Jonathan Needleman, Ph.D.

Abstract: The game of Set is one that is both fun and addicting. Aside from providing plenty of entertainment, the game also doubles as a finite geometry. Every card describes a different point on the plane and each set creates a unique line. Much like other geometries, these lines can intersect. My research focused on building upon prior findings and explored when three lines converge at a single point.

Bio: Felicia Sciortino is a graduating senior from Le Moyne College with a degree in mathematics and minors in biological sciences and philosophy. She would like to thank Dr. Jonathan Needleman and all of the math department for their support with this project and her math career in general.

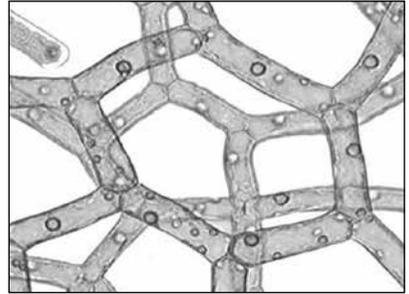
2:30 – 2:45 p.m.

THE DIVERSITY OF THE FRESHWATER, GREEN ALGAL GENUS HYDRODICTYON (CHLOROPHYTA, SPHAEROPLEALES)

Nicholas Macoretta, biological sciences

Faculty Mentor: Hilary McManus, Ph.D.

Abstract: Algae belonging to the genus *Hydrodictyon* are globally distributed. Recent molecular data suggests diversity in this genus extends beyond what could be determined via morphological and reproductive studies. Therefore, this project sought to analyze the mitochondrial *nad2* and chloroplast *rbcL* genes of several *Hydrodictyon* specimens from around the world - from both field and herbarium collections - in the context of molecular phylogenetics. Results supported the existence of a greater diversity in this genus not previously described.



Bio: Nicholas Macoretta is a senior anticipating graduation in May 2016. After Le Moyne, he plans on furthering his studies by pursuing a doctorate in molecular biology. He would like to acknowledge all of the support he has received at Le Moyne both from family and from faculty who have made this project and this plan possible.

2:45 – 3 p.m.

LITERACY INITIATIVES IN ONONDAGA COUNTY

Eileen Ploetz, sociology

Faculty Mentor: Frank Ridzi, Ph.D.

Abstract: The collective impact approach to literacy programming has grown in popularity over recent years. I engaged in applied research by becoming part of the Family Engagement Working Group, a Syracuse group dedicated to creating a list of best practices for literacy programs. Through a series of focus groups we used qualitative analysis to discern a list of seven barriers to successful literacy programming. These barriers were discussed in detail by professionals in the field and are common themes among all programs. A list of five best practices for success in literacy initiatives was also created through this collective approach. This applied scholarship has led to new efforts at collaborative programming that promise greater community impact.



Bio: Eileen Ploetz is a senior sociology major with a concentration in human services. She will be pursuing her master's degree in social work in the fall. She wishes to thank Dr. Frank Ridzi and the Family Engagement Working Group for allowing her this opportunity.

3 – 3:15 p.m.

PREDICTING SYRACUSE UNIVERSITY MEN'S BASKETBALL GAMES

Sean Love, business analytics, finance

Faculty Mentor: Thaddeus Sim, Ph.D.

Abstract: We consider two win probability models to predict the outcome of Syracuse men's basketball games. The first model looks at which factors (e.g., blocks, steals, shooting percentages) have strong predictive power in determining who wins. The second model is a time-dependent model that predicts the final outcome at different points in time during the game and for different point differentials. Data for the study were obtained from FoxSports.com and basketball-reference.com.



Bio: Sean Love is a senior business analytics and finance major with a philosophy minor. He will graduate in May and then plans to pursue a job in the business field. He is a Presidential Scholar who has been on the Dean's List every semester. Sean is a member of various clubs and organizations including Phi Sigma Tau, Investment Club, FBLA and others. He would like to thank Thaddeus Sim for his continued mentorship and support, and everyone else who helped him with this project.

3:15 – 3:30 p.m.

BENCHMARKING DENSITY FUNCTIONALS FOR OPTICAL ROTATION CALCULATIONS

James Gayvert, chemistry, computer science

Faculty Mentor: Michael Masingale, Ph.D.

Abstract: Benchmarked various computational methods at the density functional level of theory for the calculation of optical rotation and determination of absolute configuration. The molecular modeling software Spartan10 was used to identify conformers, and the computational chemistry software NWChem was used to optimize geometries, and to simulate the optical response of various chiral molecules when exposed to incident electromagnetic radiation.

Bio: James Gayvert is currently a junior chemistry and computer science double major who plans to attend graduate school in order to pursue a career in research. He would like to thank Dr. Michael Masingale of Le Moyne for his guidance during this research, and Dr. Brendan Mort of the University of Rochester for introducing him to the world of computational chemistry.



3:30 – 3:45 p.m.

DISCOVERING THE DIVERSITY OF ANYHYDROBIOTIC TARDIGRADES IN ONONDAGA COUNTY, NEW YORK

Tiffany Meador, biological sciences

Faculty Mentor: Hilary McManus, Ph.D.

Abstract: Tardigrades are microscopic invertebrates found all over the world. In unfavorable conditions they can undergo cryptobiosis in which metabolism, growth, and reproduction cease. When favorable conditions return, tardigrades can rehydrate, forage, and reproduce. Little information exists on tardigrades within New York. This research serves to complete a survey of tardigrades in Onondaga County, N.Y., with the intention of identifying which species are present as well as the distribution of those species across the county.

Bio: Tiffany Meador is a transfer student who decided to continue her education at Le Moyne after serving eight years in the Army. She will be graduating with her Bachelor of Science in May 2016 and has accepted a position at Le Moyne's Physician Assistant Studies Program in the Class of 2018.



4 – 5:15 P.M. POSTER SESSION

CO₂ AND SOIL GAS COMPOSITION FLUX OF LE MOYNE COLLEGE FOREST UNIT

Evan Candee, environmental science systems

Faculty Mentor: Lawrence Tanner, Ph.D.

Abstract: We are initiating a long-term monitoring study of carbon stocks in the Le Moyne reservoir property, comprising measurements of above-ground biomass, soil carbon concentration, and soil CO₂ flux. The biomass carbon, soil carbon and soil CO₂ flux measurements obtained will provide a base-line comparison for future measurements to assess anticipated effects of climate change on carbon stocks and rates of exchange of carbon between the atmosphere and biosphere. We expect this monitoring effort to continue for many years

Bio: Evan Candee is a senior environmental science systems major with a minor in biological sciences. He will be graduating in May 2016. He plans to pursue a career in the field of environmental science.

EXPLORATION OF ROTARY EVAPORATION AS AN IMPROVEMENT OF THERMOSTABLE PROTEIN PURIFICATION PROTOCOLS

Derek Clar, biochemistry

Faculty Mentor: Theresa Beaty, Ph.D.

Abstract: In a past purification of lactate dehydrogenase (LDH), rotary evaporation was determined to be crucial in obtaining a yield of a thermostable LDH isozyme. Cathepsin B, which has been found to play a key role in metastatic invasion in various cancers, was chosen to study rotary evaporation as a possible supplementary technique to thermostable protein purification. In vitro and in vivo studies were performed to determine if this technique can improve protein yield.



Bio: Derek Clar is a senior biochemistry major with a minor in psychology who has participated on various independent research projects including work with curcuminoids in organic synthesis, current work with Cathepsin B in biochemistry, and work concerning ADHD etiology for Integral Honors. He plans to attend medical school with the hopes of providing care to veterans and their families through service and the Veterans Administration. Derek would like to thank Dr. Theresa Beaty, Dr. Joe Mullins, the department of chemistry and physics, and the Student Research Committee for helping fund his projects, and anyone else who has helped inspire him in his quest of research experience.

MOLECULAR DIVERSITY OF THE GREEN ALGAL FAMILY HYDRODICTYACEAE

Anna Curtin, biological sciences

Faculty Mentor: Hilary McManus, Ph.D.

Abstract: Recently, studies of the freshwater, green algal family Hydrodictyaceae have revealed multiple cases of cryptic diversity. Although the genera within the family exhibit similar morphology, they are diverse at the DNA level. To test the diversity of the family within New York State, members of the family were collected during the summer months and isolated. The chloroplast *rbcL* gene was sequenced from the samples to allow for species differentiation and diversity assessment using phylogenetic analysis.



Bio: Upon graduation, Anna Curtin plans to attend pharmacy school either to become a pharmacist or to perform pharmaceutical research.

READING HABITS: THE NEGATIVE EFFECT OF NOT READING TO CHILDREN IN THE AFRICAN-AMERICAN HOUSEHOLD

Rickey Gregory Jr., sociology

Faculty Mentor: Frank Ridzi, Ph.D.

Abstract: The purpose of this study is to examine the effects that early childhood education and reading habits have on a child's school readiness and standardized test scores based on race. Through the review of the literature I found that reading books often does have positive effects on school readiness regardless of race, but does not have a positive effect on standardized test scores for African-Americans. By analyzing data from Le Moyne College's ongoing Imagination Library research, I also found that African-Americans consistently read less to their children. I conclude that this may be part of what causes the negative effect on African-American test scores that I found in the literature. I recommend that funding be made available for public service campaigns stressing the importance of reading to pre-school children.



Bio: Rickey Gregory is a non-traditional student who returned to school to pursue an MSW over 20 years after receiving his GED in Onondaga County Correctional Facility. Rickey received the Judith L. Zunic award for outstanding adult learner in 2015. Rickey plans on attending graduate school for his MSW at Syracuse University in the fall of 2016.

REOVIRUS-INDUCED eIF4E BINDING PROTEIN 1 (4E-BP1) HYPERPHOSPHORYLATION AND ITS IMPLICATIONS FOR VIRAL ONCOLYSIS

Kaitlyn Hill, biological sciences

Faculty Mentor: Emily Ledgerwood, Ph.D.

Abstract: Reovirus is a double stranded RNA virus that preferentially infects human cancer cells. Following infection, reovirus activates the cellular pathway mammalian Target of Rapamycin (mTOR), which is the ‘master regulator’ of protein synthesis. I am examining a downstream effector of mTOR, 4E-BP1, which, when phosphorylated, activates protein synthesis. Studying how reovirus manipulates or benefits from activation of the mTOR pathway could provide insight into why this virus is oncolytic.



Bio: Kaitlyn Hill is a junior biology major interested in pursuing a career in either oncology, forensic science or as a physician assistant after graduation. She would like to thank Dr. Emily Ledgerwood for her help and support on this project as well as her mother, father, sister, and brother, Danny, Michaela, Olivia, Katie, and all other friends and family for their encouragement and positivity through this whole process.

HOW PEOPLE RELATE TO OTHERS AND TO PETS: A COMPARISON

Laura Jones, psychology

Faculty Mentor: Krystine Batcho, Ph.D.

Abstract: This study explored how people relate to pets and the psychological needs served by pets. A sample of 81 male and 83 female undergraduates completed surveys of attachment to people and pets and estimates of time spent with people and pets. Consistent with theories that posit benefits of pets, results revealed that pet attachments differ from human attachments, pet lovers are less fearful of human attachments, and pets are most beneficial during difficult times.



Bio: Laura Jones is a senior majoring in psychology. She is planning to attend graduate school for mental health counseling and hopes to be able to include pets in her future work with clients. Laura would like to thank the members of her Departmental Honors Committee for all their assistance and encouragement, as well as the Student Research Committee for the financial support of this research.

SPECIES IDENTIFICATION AND INVESTIGATION OF HYBRIDIZATION BETWEEN REDHORSE FISHES USING MOLECULAR DATA

Ronald Lowe, biological sciences

Faculty Mentor: Devon Keeney, Ph.D.

Abstract: This project attempted to use DNA barcoding to distinguish between the morphologically similar fish species black redhorse (*Moxostoma duquesnei*) and golden redhorse (*Moxostoma erythrurum*) collected from rivers in Illinois. In addition to species identification, hybridization between these species was investigated by examining both maternally and biparentally inherited DNA from each fish. Results from this project will allow for improved identification of these species and provide information regarding their reproductive behaviors.



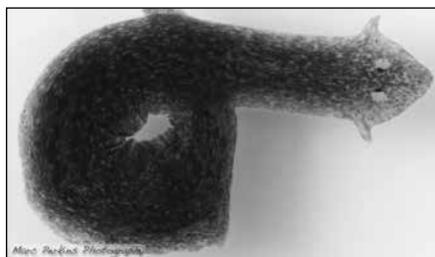
Bio: Ronald Lowe is a senior who plans on attending the University of Pennsylvania School of Dental Medicine in the fall of 2016. He would like to thank Dr. Devon Keeney and the biological sciences department for this wonderful opportunity. In addition, he would like to thank the McDevitt Center and the Student Research Committee for funding his project.

LEARNING IN THE PLANARIAN *DUGESIA TIGRINA* AND THE EFFECTS OF TAURINE ON LEARNING TIME AND RETENTION OF LEARNED BEHAVIORS

Alexander Luizzi, biological sciences

Faculty Mentor: Evelyn Voura, Ph.D.

Abstract: This study examines learning in the planarian species *Dugesia tigrina* via classical conditioning using an electric shock. The rate at which the organisms learn and the duration of memory retention will be compared across planarians in a control group, and planarians in an experimental group treated with the substance taurine, which is commonly found in energy drinks and dietary supplements.



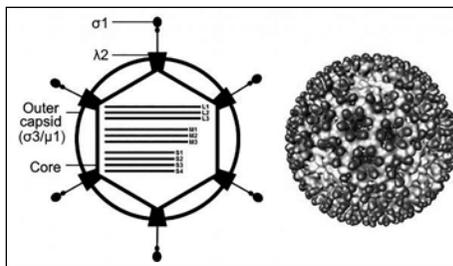
Bio: Alexander Luizzi is a sophomore biological sciences major at Le Moyne College. He intends to attend medical school after graduating to pursue a career in orthopedics. He would like to offer a special thanks to Dr. Evelyn Voura and the Student Research Committee.

ONCOLYTIC VIRUSES AS CANCER THERAPEUTICS: THE POTENTIAL ROLE OF STRESS GRANULES IN MAMMALIAN ORTHOREOVIRUS SYNTHESIS OF VIRAL FACTORIES

Michael Lutz, biological sciences

Faculty Mentor: Emily Ledgerwood, Ph.D.

Abstract: Reovirus is a human virus which preferentially infects and lyses cancer cells. This property has resulted in intense study involving usage of the virus as a treatment for cancer. Stress granules are cellular structures induced in cancer cells that concentrate proteins involved in viral replication. We are interested in understanding whether the presence of cellular stress granules benefit viral replication, potentially contributing to the oncolytic behavior of reovirus.



Bio: Michael Lutz will be graduating this May with the class of 2016. He would like to thank his research mentor Dr. Emily Ledgerwood for all her support and giving him this opportunity.

GREY VS. MELANISTIC SQUIRREL DENSITY POPULATIONS ON LE MOYNE COLLEGE CAMPUS

Chris Menz, environmental science systems;
Mark Kirwan, biological sciences

Faculty Mentor: Jason Luscier, Ph.D

Abstract: We evaluated distributions of grey and black color morphs of the Eastern grey squirrel in forest and urban environments at Le Moyne College. Black squirrels are hypothesized to be more tolerant of cooler areas (e.g., forest) than grey squirrels. We surveyed squirrels along transects bisecting urban and forest areas on campus. Populations of both morphs were higher in the forest but black squirrels had a 1.7% greater increase than grey from urban to forest.

Bio: Chris Menz is a senior environmental science systems major with a minor in



biological sciences and chemistry. He is interested in wildlife adaptation as human population grows as well as green energy solutions for the future.

Mark Kirwan is a senior biological sciences major with a minor in environmental science systems. Following graduation, he aspires to work in the outdoors as a park ranger or to continue contributing ecological research.

POVERTY'S AFFECT ON KINDERGARTEN READINESS

Nathan Moser, sociology

Faculty Mentor: Frank Ridzi, Ph.D.

Abstract: There is a multitude of literature to suggest a connection exists between a child's kindergarten readiness and whether or not they live in poverty. Often, schools deemed "low performing" will have a large proportion of their student base living in poverty. Partnering with the Literacy Coalition of Onondaga County and Le Moyne College faculty, this project will attempt to explore the relationship between high concentrations of poverty within various quadrants of the city of Syracuse and trends in kindergarten readiness scores. These findings will be examined using statistical analysis and geospatial analysis using geographic information systems.

Bio: Nathan Moser currently works as a teaching assistant at a local high school. He has been taking night classes toward his degree for several years. He will be graduating with a bachelor's degree in sociology this May.

BUT THERE WAS NO BODY! THE EVIDENTIARY EXPECTATIONS OF JURORS

Leah Rau, psychology

Faculty Mentor: Brenda Kirby, Ph.D.

Abstract: Three mock jury studies asked juries to deliberate to a verdict after receiving case information. Post-deliberation questionnaires explored what evidence individual jurors believed was most important to themselves and to the group. Differences exist between those perceptions and decision-making is affected by desired rather than presented evidence.

Bio: Leah Rau will be graduating from Le Moyne in May of 2016. She hopes to pursue graduate study in forensic psychology.



ANALYSIS OF HOST AND TISSUE SPECIFICITY OF THE WHITE GRUB FISH PARASITE *POSTHODIPILOSTOMUM MINIMUM*

Michael Romani, biological sciences

Faculty Mentor: Devon Keeney, Ph.D.

Abstract: White grub, *Posthodiplostomum minimum*, is a parasite infecting the internal organs of fish. This project used molecular data to determine if several species of freshwater fish are being parasitized by a single species of *Posthodiplostomum* or multiple, genetically distinct species. In addition, differences in infection sites within fish were compared among all parasite species. Identifying the host and organ specificity of these parasites is essential for understanding how they impact fish populations.

Bio: Michael Romani is currently a senior biological sciences major at Le Moyne College. Following graduation, Michael plans on attending Temple University School of Podiatric Medicine. This project has been useful to him, as the field of genetics has nearly universal applications. He would like to thank Dr. Devon Keeney for the opportunity and mentoring throughout the project and the Student Research Committee for funding.



EXAMINING THE RELATIONSHIP BETWEEN CRIME AND EARLY SCHOOL READINESS

Thomas Roots, criminology

Faculty Mentor: Frank Ridzi, Ph.D.

Abstract: We often hear about crime and education being related to each other in literature, and how failing schools tend to be located in neighborhoods with higher crime rates. For this project I sought to examine where the relationship between crime and education begins by examining whether or not neighborhoods with higher crime rates are related to lower educational performance as early as kindergarten entry. In order to do this I teamed up with the Literacy Coalition of Onondaga County with the help of Dr. Frank Ridzi to obtain data on kindergarten readiness screening scores by census tract. I then searched for and collated crime related data on the city of Syracuse from the FBI Uniform Crime Report databases. Finally we looked for relationships using both statistical analysis, and geospatial analysis using Geographic Information Systems.

Bio: Thomas Roots is a senior criminology major with a minor in philosophy. After graduating he hopes to one day work for the Federal Bureau of Investigation. He would like to thank Dr. Frank Ridzi for assisting him with this project, and he would also like to thank Le Moyne College for providing him with a chance to pursue a career in criminology.



EVALUATION OF SEVERAL METAL-ORGANIC FRAMEWORKS AS CATALYSTS FOR THE OXIDATION OF POLYPHENOLIC COMPOUNDS

Xavier Schafer, chemistry

Faculty Mentor: Michael Masingale, Ph.D.

Abstract: Polyphenolic compounds are a common toxic byproduct of processing some agricultural products. By oxidizing the phenol moieties of these compounds, their toxic effects are eliminated. Metal-organic frameworks (MOFs) are a class of metal-organic polymers that display versatility as catalysts for a multitude of chemical reactions. This study involves the synthesis of several MOFs and explores their applications as catalysts for the oxidation of certain polyphenolic compounds. Thus, the project investigates the use of MOFs in a possible new method for wastewater remediation.



Bio: Xavier Schafer is currently a senior chemistry major at Le Moyne with minors in biological sciences and physics. He would like to thank the Student Research Committee and McDevitt Center for their generous support, as well as Dr. Michael Masingale for his invaluable guidance and the countless hours he has donated to assisting the study. Xavier plans to pursue a doctorate in environmental chemistry following graduation in May.

SYNTHESIS AND CHARACTERIZATION OF LONG-CHAIN LITHIUM CARBOXYLATES FOR USE IN LIQUID ORGANIC SCINTILLATOR FAST NEUTRON DETECTORS

Melissa Schmitz, chemistry, physics

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 Schmitz is a chemistry and physics double major aiming toward a doctoral program in materials engineering. When she's not working on her nuclear physics research, she acts as president of Chemistry Club, managing editor of *Brain Juice Magazine*, a peer tutor, and a freelance graphic designer. Melissa also hopes to explore the fields of business and education in addition to a career as a scientist.

FAST NEUTRON SPECTROMETRY

Spencer Stuckey, chemistry

Faculty Mentor: Christopher Bass, Ph.D.

Abstract: To determine the ideal loading level of lithium chloride in an organic scintillator, data was collected based upon optical properties of the emulsions. Aqueous lithium chloride was loaded into scintillator at different mass percentages of lithium with respect to its molarity. Each sample was characterized quantitatively by its respected optical transmittance via UV-Vis spectroscopy. The loading level was optimized based upon analyzed quantitative data. The optimum concentration of enriched lithium-6 was made, and loaded into the organic scintillator. One-liter optical cells were filled with loaded scintillator to be coupled to PMT's.



Bio: Spencer Stuckey is a senior chemistry major that has been working with Dr. Christopher Bass since the spring of 2014. Spencer plans to go into industry upon graduation. He would like to acknowledge the McDevitt Center for allowing him to partake in this research for the past two summers.

TRAUMA, MEMORY, AND WRITING: HOW MEMORY-RELATED POSTTRAUMATIC STRESS SYMPTOMS MAY BE AMELIORATED THROUGH NARRATIVE WRITING

Matthew Weinerth, psychology

Faculty Mentor: Vincent Hevern, S.J., Ph.D.

Abstract: Individuals suffering from the aftermath of adverse life events are at an increased risk for numerous disorders, including trauma- and stressor-related psychiatric disorders, e.g., posttraumatic stress disorder (PTSD). Arguably some of the most debilitating posttraumatic stress symptoms in PTSD are those related to memory. This research explores how narrative writing based on trauma may ameliorate posttraumatic memory-related symptoms and promote posttraumatic growth.





Bio: Matthew Weinerth is a senior psychology major in the Integral Honors Program, a National Science Foundation Undergraduate Trauma Research Fellow, and a research assistant both in the Psychiatric Genetic Epidemiology & Neurobiology Laboratory at SUNY Upstate Medical University's Institute for Human Performance and Syracuse University's Developmental Psychopathology Clinical Research Center. He and his wife enjoy leading their local youth group, volunteering in their community, and taking care of their goats and draft horse. He would like to thank Vincent Hevern, S.J., Ph.D., professor of psychology, and Kathleen Costello-Sullivan, Ph.D., professor of English, Dean of the College of Arts and Sciences, for their incredible expertise and support.

NESTING HEIGHT AND DIAMETER PREFERENCE OF *OSMIA LIGNARIA*

Julia Wilson, biological sciences

Faculty Mentor: Sherilyn Smith, Ph.D.

Abstract: My research is on the nesting preferences of *Osmia lignaria*, the blue orchard bee, an exceptional pollinator that uses hollow tubes to nest in. These bees are active in April and May. My hypotheses are that if distance off the ground and tube diameter influence nesting choice, then nest sites farther from the ground will be used differently than ones closer to the ground, and tubes of different diameters will also be used differently.



Bio: Julia Wilson is a junior biological sciences major. She hopes to continue her education in graduate school pursuing a master's degree.



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.

