

Welcome to the Michael D. Wilson Symposium

April 24, 2019

For two decades, UMF's annual Symposium has provided a singular opportunity to experience the outstanding academic work of students from across the university. The range of scholarly and creative projects is dazzling in itself, and represents untold hours of study and preparation, in addition to guidance and mentoring by faculty sponsors. No less dazzling is the commitment our entire campus makes to attending these papers, posters, and presentations, along with the showcase of Arts Night, enlivening UMF like no other day on the calendar.

As a university invested in the liberal arts and committed to undergraduate research in all disciplines, UMF proudly supports its students in the public rendering of such work. In that most celebrated of symposia, Plato's *Symposium*, the Greek philosopher Socrates speaks of a final "vision . . . revealed to him of a single science, which is the science of beauty everywhere." Symposium Day is truly a heralding of the "science of beauty everywhere," and a testament to the breadth and depth of all we do at this institution.

With special thanks to the University Culture Committee (Patti Bailie, Olivia Donaldson, Misty Krueger, Christine Spence, Paul Stancioff, and Steven Wenz), our magnanimous sponsors, and the students presenting this year.

Congratulations to all those who contribute to this unique day on our campus!

Eric C. Brown, Interim President

Symposium Day provides a wonderful opportunity for students from all disciplines to share their impressive scholarly and creative work with the UMF community. The incredible array of presentations, poster sessions, readings, installations, and performances highlights the many talents of our student body and the multiple opportunities students have to engage in rich, rigorous research and learning experiences throughout their UMF education. Congratulations to all of the student presenters and faculty mentors, and many thanks to the organizers of this special event!

Kathy Yardley, Interim Provost and Vice President for Academic Affairs

Education is at its best when it's active, and there's no better way to take charge of one's own education than by doing one's own research. The students presenting today come from all fields, all levels, all backgrounds, but they all have this in common – they had an idea and they pursued it on their own.

The result, for the rest of us, is a feast of knowledge. Thanks to those who, by attending, provide an audience for these students to share their work. I know you join me in giving kudos and thanks to all the presenters, of whom we are proud and from whom we are pleased to be learning.

Nic Koban, Associate Provost

This symposium is organized by the University Culture Committee:

Misty Krueger (Chair)

Paul Stancioff

Olivia Donaldson

Patti Bailie

Steven Wenz

Christine Spence

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UMF Trustee Professorship

Symposium is a day to honor the value of scholarly and creative endeavor at UMF. Toward that end, we have chosen Symposium as an opportunity, not only to showcase the work of our students, but also to bestow the university's most prestigious award for scholarship to a faculty member. The Trustee Professorship is given each year to one UMF faculty member in recognition of her/his distinguished record of scholarly or creative work. The Trustee Professor receives a cash stipend, a professional development allowance, and a half-time reassignment for an academic year in order to focus on a scholarly or creative project.

Each year at Symposium we invite the current Trustee Professor to deliver a public lecture. This year's Scholar is Michael Johnson, Professor of English. All students, faculty, and staff are invited.

2018-2019 Trustee Professor

11:40 in Lincoln Auditorium

Race, Time Travel, and the Western

Michael Johnson, 2018 - 2019 Trustee Professor

What if a time traveler journeyed back in the past to prevent Jesse James from being shot in the back while hanging a picture? What if James was subsequently captured by an African American U.S. Marshal named Bass Reeves, who then went down in history as one of the most famous lawmen of the Old West, his legendary status further cemented through hundreds of western films? My project as Trustee Professor has been a critical examination of what I've come to call the "time travel western," a hybrid genre that mixes and matches science fiction and western conventions, frequently by sending contemporary characters back in time. The insertion of currently popular genre character types (such as, for example, superheroes) into an Old West setting helps to reimagine the western in a form that appeals to twenty-first century audiences. Most importantly, contemporary time travel westerns make visible the multiracial history of the American frontier by bringing a multiracial cast of characters (and by featuring neglected historical figures such as Bass Reeves) to a genre that in its classic form has repeatedly been critiqued for lacking those qualities.

Past UMF Trustee Professors

Spring 1999 – Mark McPherran
1999 – 2000 – Ronald Butler
2000 – 2001 – Jennifer Reid
2001 – 2002 – Chris Magri
2002 – 2003 – Dan Gunn
2003 – 2004 – Ming-Ming Pu
2004 – 2005 – David Daniel

2005 – 2006 – Mike Muir
2006 – 2007 – Tiane Donahue
2007 – 2008 – Paul Outka
2008 – 2009 – Drew Barton
2009 – 2010 – David Gibson
2010 – 2011 – Jeffrey Thompson
2011 – 2012 – Eric Brown

2012 – 2013 – Gretchen Legler
2014 – 2015 – Allison Hepler
2015 – 2016 – Patricia O'Donnell
2016 – 2017 – Nic Koban
2017 – 2018 – Jonathan Cohen

Michael D. Wilson Research Fellows and Scholars

The Michael D. Wilson Scholars and Fellows represent some of UMF's best students from across all disciplines. The program recognizes UMF students' tremendous creativity, and expands UMF's commitment to undergraduate research and faculty mentoring. Each student is awarded funding to help underwrite an original undergraduate research or creative project. The Program has been providing single-semester support for research, scholarship and creative projects at UMF since the fall of 2006. It was expanded in the fall of 2007 to include two full-year Wilson Research Fellow awards to support even more substantive research projects. In the years since its inception, the Wilson program has supported the investigative research and creative activities of more than 250 students at UMF. During this time over 60 UMF faculty members have developed strong mentoring relationships with individual scholars, providing guidance with proposal development, research methodology and continuing pre-professional and post-graduate opportunities. The awards honor UMF alumnus Michael D. Wilson, class of 1976, an avid environmentalist, aspiring teacher, and dear friend whose untimely death in 1977 deeply saddened the UMF community. The students are nominated by a UMF faculty mentor and, after a competitive selection process, are chosen by the UMF Undergraduate Research Council.

2018 - 2019 Wilson Fellows

Alicia Hilton and Emily Hartford (joint award) - *Developing Pedagogical Practice and Teacher Efficacy through Mentoring Clinically Based Practice*

Faculty Advisor: Kathryn Will-Dubyak

Claudia Intama - *Thailand's Sexual Revolution: Public Policy and HIV in a Changing World*

Faculty Advisors: Scott Erb and John Messier

Andrea Swiedom - *The Recipe Commons*

Faculty Advisor: Luann Yetter

Fall 2018 Wilson Scholars

William Garske - *Eulerian Components and Hamiltonian Paths*

Faculty Advisor: Lori Koban

Annie Moloney - *To Touch One Another: Ethical Boundaries of Human Violence*

Faculty Advisor: Éireann Lorsung

Aislinn Forbes - *Young Adult: Teen Girls and The Creation of a Genre*

Faculty Advisor: Christopher O'Brien

Spring 2019 Wilson Scholars

Elianna Maniatakos - *An Investigation of Social Media Use, Personality Characteristics, and Self-Esteem in Two Generations of Social Media Users*

Faculty Advisor: Rhonda Jamison

Forrest Meader - *What Magma Chambers Can Do for You - A Geologic Study of the Twin Lakes Pluton, Colorado*

Faculty Advisor: David Gibson

James Fox - *Snowpack Measurements and Modelling in Temple Stream Watershed*

Faculty Advisor: Jesse Minor

Tegan Bradley - *Hair: A Graphic Narrative*

Faculty Advisor: Sabine Klein

Sean Brock - *Assembly of the Continental Crust - A Study of the Emplacement Levels of Granitic Rocks in Central Maine*

Faculty Advisor: David Gibson

Hope Lash - *The Power of the Prostitute and the British Empire*

Faculty Advisor: Christopher O'Brien

Arts Nights 2019

Project III

On Tuesday, April 23rd, as a prelude to Symposium Day, Arts Night will highlight the Performance Arts Senior Projects. The day will feature back-to-back artistic, sound, cultural and theatrical presentations at the Emery Community Arts Center beginning at 6 p.m. and continuing into the evening. Admission is free, and all events are open to the public.

Nicholas D'Aleo – *A Musical Adaptation of Charlie Brown's Christmas*

The Vince Guaraldi Trio's soundtrack for Charlie Brown's Christmas is an iconic sound that has been around for over half a century. Fascinated for years by its unique sound, Nicholas D'Aleo's short original composition for bass, drums, and piano will pay it homage by using the thematic antics and motifs found throughout the music. While delving into the musical elements of the Vince Guaraldi Trio and their work on the Charlie Brown Christmas soundtrack, he will do a musical analysis of the album, explaining the key elements seen throughout and discuss their importance to the listener. Then, after a brief explanation about how his original piece was composed, there will be a live performance of his composition by Matthew Houston, Gustavo Aguilar, and Steven Pane.

Jonas Maines - *Frankl's Room: An Environmental Allegory*

People, at their core, search for meaning. If they find none, they will always attempt to create it. In a cluttered room, filled with odds, ends and junk, Jonas Maines invites audiences to discover their own narratives—perhaps there is one, or several, or none. Enter Frankl's Room: An Environmental Allegory, and piece together the world that surrounds you. Performances will be April 24th, with special viewings on April 16th and 23rd.

Chase McKim - *Chase and Jack Don't Know*

A durational comedy piece performed by comedy duo Chase McKim and Jack Neary that will be performed in the hallway of the student center. This 8-hour comedy marathon both challenges the comedians and the audience to fully engage in this medium. Stop by on April 8th from 8 a.m. to 4 p.m. to see us embarrass each other, talk about our strange childhood, and briefly set up a Church of Scientology station.

Cole Williams - *Power Rangers Galaxy Defense: A Season Born from Adversity*

The Power Rangers franchise has been a staple in the childhoods of many people born in the 1990s, and for little over 25 years, has remained so, to varying degrees. Recently, however, the franchise has been in what longtime fans describe as a creative slump, leading to backlash and, more worrying, dwindling ratings. With that being said, Power Rangers fan and UMF student Cole Williams will discuss his process on what led him to form ideas (which will be revealed in further details in a video essay) for an exciting new season of Power Rangers packed full of the classic action, adventure, and danger that many fans are accustomed to, but also containing layers, depth, and complexity, hoping to attract old fans and potential new fans alike.

Venue 1, Lincoln Auditorium

Wilson Scholars, Trustee Professor, Honors Presentations

9:00 - 9:20

Cataloguing: How Genre Reflects Gender Expectations

Aislinn Forbes

It is a curiosity of bibliographic nomenclature that “Young Adult Fiction” only emerged as category in the 1950s. Yet the literature existed long before it was known by that name. Between 1870 and 1940, female authors, writing primarily for female readers, pioneered the form. Yet, the contributions of women to the literary canon were largely relegated to the children’s section by the American Library Association. This presentation explores that historical injustice and, not incidentally, calls for a reconsideration of the YAF literary canon. *(Faculty sponsor: Christopher O'Brien)*

9:20 - 9:40

The Power of Prostitution and the British Empire

Hope Lash

In the midst of the First World War, cultures from around the world were converging in France, the epicenter of carnal desires and vice; or at least viewed as such by other allying European nations. Nonetheless, a troubling intersection between sexuality, prostitution, colonial soldiers, and the fate of the British Empire arose as the ‘sacred’ boundaries between white women and Indian troops were being crossed. By examining medical and disciplinary records, along with correspondence between the Viceroy of India and his secretary of state, this paper argues, that British fear and anxiety was not entirely unfounded. *(Faculty sponsor: Christopher O'Brien)*

9:40 - 10:00

To Touch One Another: Voices on the Ethical Boundaries of Human Violence

Annie Moloney

This project studies authors such as Hannah Arendt, Virginia Woolf, and James Baldwin whose writing reckons with the way violence occurs among people in order to understand how my own place in the world has shaped the way I see violence. Through personal narrative I consider my own experience as well as writing that has already begun to think about how violence is implemented through raced and gendered structures of power. How do factors like race, gender, class, and education contribute to our own understanding of what a violent act is, and how we understand what that act can mean? *(Faculty sponsor: Éireann Lorsung)*

10:00 - 10:20

Snowpack Measurements and Modeling in Temple Stream Watershed

James Richard Fox

The Walton's Millpond dam in West Farmington, Maine will be removed to facilitate Atlantic Salmon passage and spawning. Dam removal has implications for sediment transport and re-deposition following high flow events, typically following spring snowmelt. This study measures snowpack depth and snow water equivalents along an elevational gradient on north and south slope aspects in the Temple Stream watershed. Snow measurements are incorporated into GIS hydrologic models to create a watershed runoff map by estimating peak spring runoff potential at the dam site. Microclimate measurements collected using iButton sensors refine our estimates of snowpack response to air and snow temperature changes. *(Faculty sponsor: Jesse Minor)*

10:20 - 10:30

Break

10:30 - 10:50

Eulerian Components

William Garske

We will discuss "Pen-Hop Theory" in graphs, which I created in order to count repeated edges and vertices in graphs. *(Faculty sponsor: Lori Koban)*

10:50 - 11:10

Developing Pedagogical Practice and Teacher Efficacy through Mentoring in Clinically Based Practice

Allicia Hilton and Emily Hartford

In 1938, John Dewey stated, "There is an intimate and necessary relation between the process of actual experience and education" (p. 25). Facilitation of the connections between knowing and doing is sometimes overlooked in its potential effect on outcomes. We will share our investigation of the role of mentorship in the development of pedagogical practices and teacher efficacy through clinical experiences during our teacher education program. This investigation examined the role of mentorship, as both mentors and mentees, and supervision, as both supervisors and supervisees, in our development as teachers. *(Faculty sponsor: Kathryn Will-Dubyak)*

11:10 - 11:30

Hair: A Graphic Narrative

Tegan Bradley

The project is a graphic novel that explores the complex relationships between women and their hair. Written and drawn as a personal narrative it analyzes personal esthetics, social expectations, and cultural significance. The dual medium allows for visual and literary interpretation, which is necessary to appropriately convey the significance hair plays in gender. *(Faculty sponsor: Sabine Klein)*

11:35 - 11:40

The Presentation of the Walter Sargent Undergraduate Research Mentor Award

In 2012, the Undergraduate Research Council presented the first Undergraduate Research Mentor Award. In 2013, the award was named to honor the late Walter Sargent, a UMF history professor and URC member. Walter was not only a council member, but a mentor of many undergraduate research projects that built a culture of undergraduate research in his discipline. We will present the 2019 Walter Sargent Undergraduate Research Mentor Award to a faculty member with a similar record of mentoring and establishing a culture of undergraduate research within the discipline.

11:40 - 12:20

Race, Time Travel, and the Western

Michael Johnson, 2018 - 2019 Trustee Professor

What if a time traveler journeyed back in the past to prevent Jesse James from being shot in the back while hanging a picture? What if James was subsequently captured by an African American U.S. Marshal named Bass Reeves, who then went down in history as one of the most famous lawmen of the Old West, his legendary status further cemented through hundreds of western films? My project as Trustee Professor has been a critical examination of what I've come to call the "time travel western," a hybrid genre that mixes and matches science fiction and western conventions, frequently by sending contemporary characters back in time. The insertion of currently popular genre character types (such as, for example, superheroes) into an Old West setting helps to reimagine the western in a form that appeals to twenty-first century audiences. Most importantly, contemporary time travel westerns make visible the multiracial history of the American frontier by bringing a multiracial cast of characters (and by featuring neglected historical figures such as Bass Reeves) to a genre that in its classic form has repeatedly been critiqued for lacking those qualities.

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 1:30

Thailand's Kik Culture: Society, HIV and Public Policy in a Changing World

Claudia Intama

Starting in the early 2000s, Thai society underwent dynamic changes in the ways young people both viewed and had access to sexual relationships. There was a loosening of rigid social norms that previously dictated sexual behavior of youth; it suddenly became more accepted to have casual sex partners and multiple partners at one time. These changes among the young have gone against the traditionally conservative society. In my research, I studied the causes that brought about this sexual revolution, the effects it has had on HIV infection rates among the youth, and how public policy has adapted and ignored this new norm within Thai society. (*Faculty sponsors: John Messier and Scott Erb*)

1:30 - 1:50

An Investigation of Social Media Habits, Personality Characteristics, and Self-esteem in Two Generations of Social Media Users

Elianna Maniatakos

Most of the research conducted about social media utilizes college-aged students as participants. Recent research suggests that college students spend up to 14.4 hours a day engaged with some type of media—much of which includes use of some type of social media website or mobile application (Nelson, 2015). This current study aims to fill the gap in literature which lacks differences in age variables. This presentation includes our findings about age differences in social media use habits, as well as whether personality characteristics and self-esteem relate to social media use. *(Faculty sponsor: Rhonda Jamison)*

2:00 - 4:10

Honors Program: Honors Experience Overviews and HON 499 Defense Practice

Julianne Andreades, Gail Bello, Kim Day, Nichole Decker, Tina Hall, Meagan Jones, Whitney LeMay, Alessio Mencarelli, Belanna Morales, and Samantha Wood

Honors Program students will have an opportunity to share an overview of their Honors Experience obtained through travel abroad and internships. Honors Experience may be applied toward Honors recognition levels. Following the experience presentations, students enrolled in HON 499 will have an opportunity to practice their thesis/creative project defense in front of others. *(Faculty sponsors: John Messier)*

Venue 2, C-23, Roberts Learning Center

Anthropology, Psychology, Math, Humanities

9:00 - 9:20

Immigrant Integration in the US

Katie Starkie

What do immigrants experience when attempting to integrate into US society? Are their experiences largely positive or negative? Are these experiences different depending on their ethnicity and/or native language? Is there a disconnect between how immigrants and native-born people view integration? Can there be a common ground between assimilation and multiculturalism? Should there be? What would it look like? I'm attempting to answer these questions with a combination of scholarly journals, texts, and human subjects research with both immigrants and native-born people. *(Faculty sponsor: Nicole Kellett)*

9:20 - 9:40

Believing Origins: How Does a Person's Sense of Identity Fit with Their Ancestry?

Alexander Sanford

Humanity has always been moving across the world, from Africa to Asia and Europe and in recent history from the "old world" to the Americas. These migrations cause a mixing of genes that gives us diversity. However, in

mixing we sometimes lose track of our history or distort it. The distortion regarding a person's sense of ancestry is something I analyze by asking four families their oral histories, with particular attention given to ethnic history, and then use DNA tests to see how the results compare. Furthermore, I aim to explore why families glorify certain details while ignoring others. *(Faculty sponsor: Nicole Kellett)*

9:40 - 10:00

Misheard or Ignored? Listening over Hearing: Do Lyrics Matter?

Dawn Lei Harris

Music has a deep place within most cultures around the world, however, its place and the messages it gives have changed over the years. As a community has it become possible to tune out song lyrics to avoid sensitive or uncomfortable topics to just enjoy a song? Can a negative message hide behind a great beat or a well-produced piece of music? Do lyrics even matter to the general listener? Can looking at the lyrics change a person's view of a song? I explore these questions and more through focus groups with UMF students and Farmington community members. *(Faculty sponsor: Nicole Kellett)*

10:00 - 10:20

Quality Affection: How Do We Express Affection Among Friends?

Sarah Cookson-Gillis

For my research project I have looked at the ways that students at the University of Maine Farmington campus express affection towards their friends, how they define it, and what they think qualifies as platonic affection. I predict that people will consider romantic and platonic affection to be in close relation to one another. To address my research question I have looked at previous researchers' findings and conducted one-on-one interviews with multiple students on campus. *(Faculty sponsor: Nicole Kellett)*

10:20 - 10:30

Break

10:30 - 10:50

Sex Education and Perceptions of Sex: An Analysis of College Women

Tekia Cox

This research examines the ways in which female college students at UMF acquire their knowledge of sex and how their education has had an impact on how they perceive sex. Throughout several focus groups, information was gathered about the experiences these women have had and key terms were later used in surveys to gather more quantitative data on where women were gaining their knowledge and their overall perceptions. This work is important as it shows insight into how women are understanding sex in the hypersexual environment that is college. *(Faculty sponsor: Nicole Kellett)*

10:50 - 11:10

What's Behind the Red Light District?": Amsterdam versus Cyprus

Kimberly Larabee

Everyone knows about the red light district in Amsterdam, but what do we know about Cyprus? I aim to better understand how sex work in Cyprus compares to that in Amsterdam. Where are these women coming from?

How are they recruited? Do they have choice? These are some questions I explore in my research drawing from my time abroad in Cyprus and the literature. I compare different levels of legality and criminalization and how it impacts the experiences of the sex workers. This topic is important because I feel as a society we need to end stigmas around sex work. *(Faculty sponsor: Nicole Kellett)*

11:10 - 11:30

From Chaos to Commitment: Narrative Healing in Marginalized Populations

Moninda Marube

The phenomenologist David Carr (1986) once observed that "life can be regarded as a constant effort, even a struggle, to maintain or restore narrative coherence in the face of an ever-threatening, impending chaos at all levels." In this presentation, I will consider the project of generative engagement as a source of narrative coherence. Drawing on the work of Dan McAdams and other narrative psychologists, I will argue that commitment stories have the power to redeem broken narratives. The relevance of this thesis for counselors and social workers serving marginalized populations will be considered. *(Faculty sponsor: Steven Quackenbush)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 2:10

Live from Farmington: Creating Our Own TV Productions

Alyssa Akers, Gareth Belton, Haley Butler, Joseph Campbell, Trevor Crowley, John Curtin, Cassidy Delano, Emma Dwelle, Catherine French, Elyssa Giguere, Alyssa Harris, Zack Hubbard, Alex Kane, Kurtis Morton, Adriana Novella, Danny Terhune, and Tucker Weeks

Students from FYS100: Television and American Culture will share the TV productions they created this semester in collaboration with Mount Blue TV. The productions include a Maine-themed comedy news show, an interactive science program for children, a celebrity talk show, and a documentary about the moon landing. After sharing their productions, students will answer questions and discuss their television production processes. *(Faculty sponsor: Mary Ellms)*

2:10 - 2:30

The Strategies of Pac-Man

Cameron Morin

This presentation will be reviewing the various strategies behind Pac-Man. In an attempt to figure out player vs player strategies, I have decided to first look at how someone should react when going against a predictable computer. Using game theory and GeoGebra I believe that I have been able to find the best strategy to avoid the Ghosts and progress through the game. In my talk I will also be showing some of my finding and various methods that I used to discover my results. *(Faculty sponsor: Nicholas Koban)*

2:30 - 2:40

Break

2:40 - 3:00

Amusing Ourselves to Death: Postman in Modern Democracy

Nathaniel Gordon

A look at Neil Postman's ideas about how entertainment values have affected public discourse, and how those ideas manifest in the new media of 2019. *(Faculty sponsor: Matthew Freytag)*

3:00 - 3:20

Locke: A Leftist Perspective

Joshua Aho

An in depth look into John Locke's Two Treatises and its relation to land ownership, the commons, the role of currency, and other issues of modern society. *(Faculty sponsor: Matthew Freytag)*

3:20 - 3:40

Reflections on Democracy in Mexico

Jonathan Chambers

The celebration of the narcos (and other bandits) in Mexican story and song, and how that relates to citizens' attitudes toward the law the citizens theoretically create in a democracy. *(Faculty sponsor: Matthew Freytag)*

Venue 3, Thomas Auditorium

Natural Sciences

9:00 - 9:20

Microbial Resistance: Standard Household Cleaners vs. Environmentally Friendly Cleaners

Kyla Sturtevant and Chase Malloy

This project is designed to test the bacterial population difference on common surfaces before and after being cleaned with either environmentally-friendly household cleaners or standard household cleaners. With the incidence of antimicrobial resistance increasing, the global infectious disease health threat is a real concern. Little research has been done on the effectiveness of the more environmentally-friendly cleaning options in eliminating unwanted bacteria. By examining bacterial growth in the presence of different cleaners and in different environments, this study should help us to gather a better understanding of bacterial resistance to chemical based disinfectants and other, more environmentally-friendly cleaners. *(Faculty sponsor: Jean Doty)*

9:20 - 9:40

The Isolation of Antibacterial Resistant Bacteria from Triclosan Exposed Surfaces

Eli Michaud, Andrea Stemm, and Jessica Douglass

This project investigates a possible link between the use of Triclosan and bacterial antibiotic resistance, which contributes to approximately 23,000 deaths annually in the US. Triclosan is a chemical with a wide range of uses including antibacterial soaps, household items, and personal care products. Previous studies have shown long-term exposure to Triclosan may negatively impact our environment, as well as human health, leading to issues like infertility, obesity, cancer, and disrupting the human microbiome. Obtaining TCS resistant isolates and testing their antibiotic sensitivity will provide data on the correlation between TCS resistance and resistance to antibiotics. (*Faculty sponsor: Jean Doty*)

9:40 - 10:00

Host Specificity in Mycobacteriophage

Chelsey Frank and Tamera True

Phage therapy is a novel way of combating bacterial infections, one that is especially useful against antibiotic resistant pathogens. This study will test the host specificity of previously isolated mycobacteriophage known to infect *Mycobacterium smegmatis* by testing their ability to infect other species of *Mycobacterium*, specifically *Mycobacterium Avium avium* and *Mycobacterium kansasii*. Our goal is to find bacteriophage that are capable of infecting multiple members of *Mycobacterium* in order to determine if a single isolated phage could be used to treat multiple bacterial infections. We also hope to identify bacteriophage characteristics that make it more versatile than others. (*Faculty sponsor: Jean Doty*)

10:00 - 10:20

Implication of Global Change: Effects of Acidification on Marine Microbes

Abdul Kalayaf and Alfred Odong

This project is designed to test the effects of changing seawater chemistry on marine microbial assemblages and carbon utilization efficiency. Since the beginning of the industrial revolution, there has been an occurring increase in the amount of CO₂ in the atmosphere causing a change in the average global seawater pH. As atmospheric CO₂ levels increase, so do the pH levels in the ocean which is dramatically changing the chemistry of seawater. Here we designed an experiment to test and examine marine microbial assemblages in four sites in the Gulf of Maine to identify tolerant microbes and assess carbon utilization efficiency. (*Faculty sponsor: Jean Doty*)

10:20 - 10:25

Harvey Aft Award for Excellence in Chemistry

Mariella Passarelli, Terry Morocco, Michael Sherrod, and Chris Brinegar

Each year the chemistry faculty recognizes a student who has excelled in upper-level chemistry courses, has outstanding general scholarship, has demonstrated interest in chemistry, and projects a good attitude toward the field. Please join us when we announce the winner and present the award.

10:20 - 10:30

Break

10:30 - 10:50

The Effectiveness of Disinfectants Used on the Equipment at the FRC

Sarah Douglas and Emma Madison

We are testing the cleaners that the UMF gym uses for killing bacteria on workout equipment, including workout areas in the gym. To do this, we are sampling before, during and after a workout. Results will also show which areas have more bacteria growth and diversity. We plan on testing the weight room, cardio room, and the workout mats. Results will indicate which cleaner, and which wiping method, is most effective. This information can help inform the gym if current methods of cleaning by both the patrons and employees are sufficient. *(Faculty sponsor: Jean Doty)*

10:50 - 11:10

Study of Coyotes' Impacts on Swift Fox Populations in Montana and Texas

Veronica Manasco

Animals sometimes will exclude other animals from areas if they occupy similar niches in an environment. This is called competitive exclusion and appears to happen between coyotes and swift foxes. In an ongoing study that is being conducted by Dr. Donelle Schwalm at the University of Maine at Farmington, I wanted to find out if coyotes caused differences in the number of swift foxes in areas of Montana and Texas. We used images from game cameras to find swift foxes and coyotes in a variety of areas that swift foxes have been known to inhabit at some point or other. *(Faculty sponsor: Sarah Sloane)*

11:10 - 11:30

The Effects of Sugars on *S. mutans* Development and Growth

Sarah Douglas, Jonathan Ferguson, and Allisha Darling

We determined the effects of natural and processed sugars on the growth pattern of *S. mutans*, a cavity-causing bacteria. Properties in sugar have affected the growth patterns of certain bacteria that are located inside the mouth. Sugar that has been heavily processed has been shown to be detrimental for humans. Natural sugars may alter or slow down the growth pattern of *S. mutans*, while heavily processed sugar may increase its growth. Determining the effects of natural and processed sugars have on the growth of *S. mutans*, we can better understand the growth of *S. mutans* in the human mouth. *(Faculty sponsor: Jean Doty)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 1:30

Osmotolerance in Vancomycin Resistant *M. luteus*

Alexandra Banks, Shane O'Neill, Ryan Bickel, and William Sampson

Vancomycin acts on gram-positive bacteria by inhibiting cell wall growth. *M. luteus* was selected for vancomycin resistance through repeated exposure. The effect of solute concentration on growth rate was then measured

by optical density in both resistant and susceptible strains. Because of the relationship between solute concentration and cell turgidity, concentration may affect the strains differently due to vancomycin's mechanism of action. We predict that resistant *M. luteus* strains will show lower growth rates in higher solute concentrations. *(Faculty sponsor: Jean Doty)*

1:30 - 1:50

Effects of Oral Contraceptives on Fetal Development of Zebrafish

Kylie Beaulieu, Jerzee Rugh, and Gary Sanderson

With the growing use of oral contraceptives (OC's) by women, not much is known in the case of long term effects on fetal development. Some research shows a link between OC's and increased blood pressure, autism, heart conditions, etc. in developing zygotes. In this study, the effects of the oral contraceptive on zebrafish embryos are identified. A total of sixty embryos were used for each trial: 30 under controlled conditions, and 30 treated with Daysee (an oral contraceptive). At the end of each trial, weights of embryos were taken and compared to control. Results of this study could help to determine the long term effects of these hormones on users offspring. *(Faculty sponsor: Jean Doty)*

1:50 - 2:10

Investigation into Bacterial Resistance in Relation to GMO and Non-GMO Products

McKenna Brodeur, Kayleigh Oberg, and Benjamin Higgins

GMO techniques utilize kanamycin genes as markers during engineering processes. The purpose of this research was to uncover differences in bacterial kanamycin resistance from marketed Non-GMO and GMO apples. This research began by allowing apples to naturally decompose, promoting bacterial growth during decomposition. Apples were swabbed weekly to collect bacterial isolates. Different colonies of bacteria were tested among their non-GMO and GMO groups, using a Kirby-Bauer Susceptibility Test, which determined resistance to kanamycin by the different bacterial isolates collected from Non-GMO apples and GMO apples. Research was done with the hypothesis that GMO apples would possess more antibiotic resistant bacteria. *(Faculty sponsor: Jean Doty)*

2:10 - 2:30

Lysogeny of Frokostdame

Abigail Moreau, Kesuma Laizer, Andrew Wilcox

Frokostdame is a virus that can infect bacteria. It is already known that Frokostdame is capable of infecting bacteria by means of lytic infection. The purpose of this experiment is to see if placing the bacteriophage, Frokostdame with a host under varying conditions promotes lysogeny. Previous studies of Frokostdame have shown some lysogenic genes are present in the genome. We predict that varying host growth conditions will result in Frokostdame lysogeny. *(Faculty sponsor: Jean Doty)*

2:30 - 2:50

Effects of Antibiotic Resistance on Phage's Ability to Infect Bacteria

Fern Calkins and Nathan Violette

This project was designed to determine which genes influence a mycobacteriophage's capability to infect antibiotic-resistant bacteria and which genes influence antibiotic resistance in bacteria. Natural selection and overuse of antibiotics in medical practices have led to more bacteria developing resistance to numerous

antibiotics. Phage therapy, a mode of disease treatment in which bacteriophage are utilized to target certain pathogenic bacterial cells, has been proposed as an alternative to antibiotics because bacteriophages' specificity during infection is believed to avoid resistance development. This experiment will provide genomic details relevant to refining current methods for phage therapy by establishing which genes impact resistance. *(Faculty sponsor: Jean Doty)*

Venue 4, Roberts 101

Geography, History, Political Science

9:00 - 9:20

Community Service: Young Adults Views of and Ties to Their Community through Volunteering

Alana Mayhew

Community service is vital to the functioning of a community, whether it be a group of people, an organization, a school, a town, etc., participating. Community service is voluntary work that benefits others and is usually unpaid. Young adults ages eighteen to thirty have lives that consist of many changes, and during this time in their lives they can have many opportunities to volunteer if they choose. Through questionnaires, this research examines if community service, or lack thereof, affects one's views of and ties to a community. *(Faculty sponsor: Brad Dearden)*

9:20 - 9:40

Mobility, Winter Conditions, and Social Isolation

Lucas Dwornik

Social isolation is recognized as causing mental and physical stress, and is a trait often found in suicide victims. Having a sense of community is important to people's mental health, but getting together in a rural town isn't always straightforward. This research is meant to examine whether or not winter conditions, such as snow build-up and ice, increase people's social isolation due to issues with mobility. Icy sidewalks, flooding, and snow make walking in Farmington rather uncomfortable; and the key question is if the discomfort prevents people from being integrated into the community. *(Faculty sponsor: Brad Dearden)*

9:40 - 10:00

Off Road Motorized Vehicle Use in Maine: Conflict and Resolution

Henry Goggins

In Western Maine, off-highway vehicle use including ATV and snowmobile use has been steadily growing in popularity for over two decades, providing a valuable economic resource to the state. However, this industry is impacted by conflicts between stakeholders including riders, landowners, and other recreators. Through a series of interviews with these stakeholders this research aims to identify those conflicts, their impacts, and potential solutions to the problems at hand. *(Faculty sponsor: Brad Dearden)*

10:00 - 10:20

Dissension and Collaboration in Climate Change Discourse

Kylie Dunphy

This research explores the historical relationship between western scientific thought and traditional ecological knowledge within a framework of power and in the context of climate change. The leading question is: Are western scientific thought and traditional ecological knowledge mutually exclusive, or can they work collaboratively in the context of climate change? Through analysis of secondary sources, the research will unpack the relationship between the two knowledge systems, investigating a decolonized space where other epistemologies and ontologies can communicate with each other effectively and respectfully, potentially creating a new climate change discourse. *(Faculty sponsor: Brad Dearden)*

10:20 - 10:30

Break

10:30 - 10:50

From Immigrant Community to Church Community: A Story of Assimilation

Michaela Carney

In the early 1950s, a Russian immigrant community took root and flourished in Richmond, a small Maine town, 35 minutes down the Kennebec River from the state capitol in Augusta. They built businesses, erected a church, and launched several social organizations. Twenty years later, the community had all but evaporated. Today, little remains but the Russian Orthodox church and a small “church community.” This presentation explores that rapid rise and fall with two simple questions in mind: Why did they come? And, why did the experiment mostly fail? *(Faculty sponsor: Christopher O'Brien)*

10:50 - 11:10

Life in Galena, Illinois: How a Suggested Move out West Would Shape Elihu Washburne's Career

Madeline Soucie

Elihu Washburne, member of Congress, Ambassador to France and close friend to two presidents, was raised one of ten children in a family fallen on hard times in Livermore, Maine. Between that hardscrabble start and his later successes, he was a lawyer in the riverfront town of Galena, Illinois. Scholars have mostly overlooked this aspect of his story, but it was there that he made life-defining connections and joined the realm of politics. This presentation will examine Elihu Washburne's life in Galena from 1840-1853 to explain how it shaped his future. *(Faculty sponsor: Christopher O'Brien)*

11:10 - 11:30

The False Death of the Women's Movement

Allison Bernier

An examination of women's political activity in Boston between the years of 1920 and 1935 in response to the theory that the women's movement became inactive after the passage of the 19th Amendment. *(Faculty sponsor: Christopher O'Brien)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 1:30

Surviving Arnold: The Shippen Family During the American Revolution

Michael Carter

According to an old saying, a loyalist was someone whose head was in England, whose body was in America and whose neck ought to be stretched. How then does one explain the fate of Philadelphia's Shippen family? Long among America's wealthiest families, the patriarch, Edward Shippen IV was a lawyer, judge of the admiralty and frequent beneficiary of Royal Offices. To make matters worse, his youngest daughter, Margaret (Peggy) Shippen married Benedict Arnold. Yet when the rebels emerged victorious, the Shippens were mostly unharmed by the transition. This presentation asks a simple question: How did the Shippens survive? *(Faculty sponsor: Christopher O'Brien)*

1:30 - 1:50

English as Colonialism: English Schools on Maine Native American Reservations

Jeffrey Willey

In 1827, Reverend Elijah Kellogg oversaw the Quoddy School, located on the Pleasant Point Reservation in Washington County. Here, native children such as Lewy Sockbason were expected to learn English and adopt American customs. As early as 1820, the State of Maine founded schools such as this on its native reservations with the intent of forcefully educating its students in English. This practice of compelled assimilation preceded the federal government's similar initiatives in the Western Territories by decades. This research project explores how and why these schools were established in Maine and their effects on the children who attended them. *(Faculty sponsor: Christopher O'Brien)*

1:50 - 2:10

From the Attic to All the Rage: A History of Genealogy in the Twentieth Century

Anthony Blasi

As Elizabeth Warren's recent DNA test revealed, America is fascinated with genealogy. Tracing changes in technology, as well as the causes of the recent boom in popularity, this presentation attempts to fill a noticeable gap in the field: While there are scores of books on how to conduct research, there is only one book on the history of genealogy. Picking up where that work tapers off, the project argues that from the eugenics movement in the early 20th Century to Roots in and ancestry.com in later decades, how one understands one's past is intimately tied to how one understands the present. *(Faculty sponsor: Christopher O'Brien)*

2:10 - 2:30

Michael X. Mockus: Blasphemy and Incorporation

Corey Martin

In 1921 the Supreme Judicial Court of Maine ruled that Michael X. Mockus was guilty of the crime of blasphemy for proclaiming that "the Bible is monkey business." Before he came to Maine, Mockus was also arrested for blasphemy in Connecticut and Illinois. This presentation will explore the reason why his defense and right to

denounce God were not guaranteed at the state level, and ask one fundamental question: How could the seemingly archaic laws of blasphemy supercede the civil liberties of a man in the twentieth century? *(Faculty sponsor: Michael Schoeppner)*

2:30 - 2:40

Break

2:40 - 3:00

The Issue with Utilitarianism in Aquatic Environmental Policy Making

Amy Fortier-Brown

Environmental policy has traditionally been created to protect the natural world to preserve human survival and economic prosperity, thus making them utilitarian in nature. One of the great issues with this, however, is that these policies are in place to protect those who wrote them, allowing women and minorities to be disproportionately impacted by environmental damages. Thus, in order to have proper environmental policies, there must also be equal representation in the formation of them. This presentation will discuss this issue as it relates to the protection of waterways and human health in the United States. *(Faculty sponsor: James Melcher)*

3:00 - 3:20

First Generation College Student Support in Public Colleges in Maine

Mariah Langton

First-generation college students face unique challenges once they get on campus that often requires additional support. In my research, I am looking at the UMaine schools and Maine Community Colleges to see how they support their first-generation students and how effective their practices are. I am also looking at the funding for these programs and if it is adequate enough to support the students on their campus. This research is being done for the Maine Public Policy program, which runs until November, so the research is not yet complete. *(Faculty sponsor: James Melcher)*

3:20 - 3:40

Sex and Policy: A Look at the Comstock Act and the Mann Act

Claudia Intama

Sexuality is an integral component to the human experience and reflects the overriding cultural beliefs of the society at large. Sex itself is a power play between two or more individuals, and as such, sex is inherently political. Throughout history, American government has tried to control human sexuality on the federal level, such as in the Comstock Act and the Mann Act. This presentation will look at how sexuality has been regulated through the use of public policy in the United States, applying the overriding popular political schools of thought at the time as a guide to understand the reasoning behind various laws and regulations. *(Faculty sponsor: James Melcher)*

3:40 - 4:00

The Four Horsemen of New Atheism

Corey Martin

Has atheism become a faith? According to several critics, four atheists known as the “Four Horsemen” expressed views that were mirror images of the Christian Right in the early 2000’s. As Christians use the Bible, and as

Muslims refer to the Koran, these atheists have been similarly charged with relying on Charles Darwin's theory of evolution to assert moral authority and debase the arguments of their opponents concerning Islam, the existence of God, and the method to achieving a peaceful society. This presentation will explore how atheism has been altered into a system of faith, and will formulate this question: what is faith? (*Faculty sponsor: James Melcher*)

Venue 5, CR 123, Student Center

Creative Writing, English

10:30 - 11:30

Dailiness: Nonfiction and the Commonplace Book

Students of ENG 212

Our cultural idea of capital-L Literature is of something polished and complete. But writing happens incompletely, over time—as thought does. Seeing writing as process rather than product changes the way we imagine and arrive at our subjects and forms. ENG 212 has spent the semester reading works that take dailiness and repetition as their subjects and methods, and making commonplace books that reflect our ordinary lives. Commonplace books stretch our attention to form, content, meaning, and show how small daily acts of looking and recording lead to understanding and to story. Come hear about and make a commonplace book! (*Faculty sponsor: Éireann Lorsung*)

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 2:10

Capstone Projects in English: Session 1

Scott Franzose, Jane Metsker, Juliana Burch, and Maggie Pomerleau

Students from English 491: Capstone in English will present their projects. Presentations include: Scott Franzose's "New York State of Sublime: Setting and Satire in 'The Bonfire of the Vanities,'" Jane Metsker's "Setting a Moral Standard: The Importance of Equality in Ethics and Expectations," Juliana Burch's "Alone in the Dark: Isolation in the Horror Genre," and Maggie Pomerleau's "Creating Lifelong Readers." (*Faculty sponsor: Sabine Klein*)

2:10 - 3:10

Capstone Projects in English: Session 2

Alex Williams, Hailey Wellington, Kristine Sarasin, and Kirsten Corey

Presentations include: Alex Williams' "Queer-coding: The Villainization of Queer Characters in Children's Media," Hailey Wellington's "Normalizing Queerness in Graphic Novels," Kristine Sarasin's "Where are the Butches?" and Kirsten Corey's "Re-Remembering: How Poetry Works to Articulate Traumas of the Body." (*Faculty sponsor: Sabine Klein*)

3:10 - 3:20

Break

3:20 - 4:20

Capstone Projects in English: Session 3

Annie Moloney, Aurora Bartley, and Kaitlyn Knight

Presentations include: Annie Moloney's "To Touch One Another: Voices on the Ethical Boundaries of Human Violence," Aurora Bartley's "A Woman Writing and Why She Must Write," and Kaitlyn Knight's "Honest to God Talks: Discussions on Popular Music and Psalms." (*Faculty sponsor: Sabine Klein*)

Venue 6, The Landing, Student Center

Education, Humanities

9:00 - 9:20

More than Just Academics: Creating Social Success for Students with Disabilities in a General Education Setting

Tina Hall

Inclusive education is a topic that has been gaining speed in the educational world. One way to create the Least Restrictive Environment, inclusive settings for students, both with and without disabilities, have been developing in order to create a safe and welcoming environment for students to learn. Through research, collaboration, and my own student teaching experience, I will be presenting on how to help all students become more socially successful in an inclusive setting. (*Faculty sponsor: Karen Smith*)

9:20 - 9:40

Dolls with Disabilities

Lindsey Herzig

Dolls with Disabilities is a presentation aimed to inform future educators and parents about the growing demand, and now supply, of toys tailored to the diversity of REAL children. Dolls with Disabilities is a title given by one toy company based in the UK, who specifically produces toys with physical disabilities. There are many other toys and stuffed animals that replicate the real diversity of children that are now in production, not limited to just dolls. Though this is a step in the right direction when defining exceptionalities, there is still much room for improvement. (*Faculty sponsor: Karen Smith*)

9:40 - 10:00

Developing Teaching Practices Through Problem Scoping

Page Cadorette, Allie Cox, Alyssa Leonard, Kaden Pendleton, and Emily Thibodeau

Preservice teachers enrolled in EDU 302 and 333 in the Fall of 2018 participated in a Co-Lab experience where they partnered with a local kindergarten and first grade teacher to engage in the engineering process of problem scoping to address an authentic problem of practice related to literacy instruction in the classrooms. This process required them to develop an inquiry stance where through iterative cycles they collaboratively

developed potential solutions that were shared with the teachers. Their participation allowed them to lead conference participants in the problem scoping process at the Clinical Fellows Symposium in Atlanta to assist teacher educators in addressing their problems of practice. (*Faculty sponsors: Kathryn Will-Dubyak and Meredith Swallow*)

10:00 - 10:20

Milton and Today

Curtis Cole

Many know John Milton as the genius who wrote *Paradise Lost*, the epic tale about Humanity and the Fall. What many people do not know, however, is how Milton factors into our modern society. We know of the many uses of Shakespeare but not Milton—why and perhaps more importantly, what would such “many uses” look like? This presentation will look at the myriad of ways that Milton and his writings factor into contemporary life through reflections on research, writing, and podcasts. Join us as we take a look at an important but underappreciated English author. (*Faculty sponsor: Daniel Gunn*)

10:20 - 10:30

Break

10:30 - 10:50

Sartre and Artificial Consciousness: Transhumanism as a "Useless Passion"

Garrett Fisher

The transhumanist movement can be succinctly characterized as a passion to achieve a perfect synthesis of humankind and technology. This synthesis, sometimes referred to as "the singularity", involves a collapse of traditional distinctions between mind and machine. Further, many transhumanists hope to improve the human condition by using technology as a corrective for individual deficiencies and as a potential source of perpetual pleasure. In this presentation, I will argue that this transhumanist spirit is, fundamentally, a desire to escape from one's humanity as such. Considering the movement from the vantage point of Jean-Paul Sartre's existential philosophy, I will suggest that transhumanism can be interpreted as a vain attempt to achieve a perfect synthesis of freedom and facticity. An authentic humanism implies that we explore alternative conceptions of the relationship between creator and creation. (*Faculty sponsor: Steven Quackenbush*)

10:50 - 11:10

Langston Hughes & Cannibal Ox: a Portrait and Transcendence of Struggle

Jacob Pilgrim

Langston Hughes depicted African-American life through his poetry, often describing themes of love, jazz, and struggle. Decades later, In 2001, underground hip-hop group Cannibal Ox released their album *The Cold Vein*. This album speaks about the stress of poverty and struggles of African-Americans living in Harlem. Both Hughes and Cannibal Ox pull at similar threads of life amidst struggle, expressing these sentiments through poetry. Although both write of the strifes of life, both also speak on overcoming these struggles through verse. (*Faculty sponsor: Michael Johnson*)

11:10 - 11:30

Angst and Anxiety: Reconceptualizing Mental Illness through Heidegger's Being and Time

Garrett Fisher

Anxiety is perhaps the most common and regularly experienced form of mental illness, especially amongst undergraduates—41% cite it as their most pressing concern. Stress, rejection, and uncertainty are commonly cited as the harbingers of apprehension, but underlying these worldly concerns is a deeper existential confrontation between Being and Non-Being that is entirely neglected by diagnostic manuals such as the DSM-5. Utilizing Martin Heidegger's philosophical study of human existence, I will argue that these popular conceptions of anxiety are profoundly damaging and reductive, and as such may prevent effective treatment in therapy. Implications for a radical reconceptualization of mental illness and diagnostics for such will also be discussed. *(Faculty sponsor: Matthew Houston)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 2:10

Tradition and Change in Latin America

Chy'Anne Cray, Kasey Erlebach, and Joe Haggerty

Three students from Spanish 302 will share their final research projects on tradition and change in Latin American society. *(Faculty sponsor: Steven Wenz)*

2:10 - 3:30

Migration and Community: Tracing the Journey

Clémentine Leroy, Katie Starkie, Catie Meehan, Calista Hodges

Maine has a rich immigrant history and is home to many recent migrants who have stories to share. Let us listen and learn. At this media-rich session, students in HON 377H will play and discuss audio clips from oral history interviews they conducted with immigrants who live, study and work in and near Farmington. Additionally, the presenters will share digital stories that they created in collaboration with their interviewees. Exploring matters of race, ethnicity, identity, teaching and activism, these video narratives will be archived through the Immigrant Stories project at the University of Minnesota's Immigration History Research Center. *(Faculty sponsor: Olivia Donaldson)*

Venue 7, Ricker 217

Psychology Research Projects

1:10 - 4:10

PSY 400 Research Methods Independent Projects (Oral Presentations)

Juan Agramonte, Zee Allen, Amber Chesley, Zachary Cline, Hailey Grace, William Hill, Brandon Martin, Nicholas Oullette, Eamon Reis, Alexandria Ridley, Olivia Sanborn, and Janis Stinson-Pryor

Twelve Psychology and Business Psychology students will present their independent research projects in oral presentations. The students' projects including how people respond to a person offering a free hug; the impact of artwork on emotion; perceptions of a weeping college student; how music impacts comprehension and comprehension; leisure time as a function of gender; how an athlete's success impacts perceptions of his attractiveness; how gender impacts conversational fluidity; correlations between musical and political preferences; personality differences between cat and dog owners; reactions to a yelling boss; and how altruistic acts are perceived on social media. *(Faculty sponsor: Karol Maybury)*

Venue 8, Art Gallery, Emery Flex Space

Senior Art Presentations

Please note that the senior art talks will begin at the UMF Art Gallery and then shift to the Flex Space in the Emery Center for the remainder of the time.

1:10 - 3:10

Now is Over: Senior Exhibition Artist Talks

Martha Campbell, Gregory China, Zion Hodgkin, Amethyst Miller, Adam Morrison, Jonathan Petrey, and Renee Schneider

Art majors present their senior thesis projects with artist talks for the 2019 senior exhibition, "Now is Over." These artists craft narratives around a wide range of subjects, including psychology, utopia, identity, memory, futility, parody, beauty and violence. These pieces are designed to evoke reflection and, sometimes, laughter. This group show focuses on digital video and animation. Sculptural objects, as well as prints and photographs will also be featured. *(Faculty sponsor: Dawn Nye)*

Venue 9, Emery Center Lobby

Art

9:20 - 11:20

Contemporary Art: Expansion Project

Sophie Barnard, Matty Bernard, Heather Boland, James Corcoran, Nichole Decker, Whitney Durgin, Lake France, Alex Garrett, Hannah Hutchings, Jocea Jordan, Emily Kelley, Samuel MacDonald, Crystal Macomber, Stephanie McLean, Dominay Palmer, Emma Pierce, Samantha Taylor, and Amanda Whitten

The Expansion Project appropriates and builds upon specific existing artworks. Students work together to subvert and expand the concepts and structures of the original artworks, considering their visual-structural, social, and political contexts. *(Faculty sponsor: Sarah Maline)*

Venue 10, Education Center Lobby

Education

9:00 - 10:00

Zip Your Creativity in STEAM

Kayleigh Knox, Marissa Chamberlain, and Andrew Price

Attendees will engineer a harness to carry an object along a 5-meter zip line to investigate the relationship between the weight of the harness and the speed of the traveling object. Throughout this session, presenters will share outcomes from this lesson across multiple grade levels. *(Faculty sponsor: Carole Lee)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

3:00 - 4:20

Interactive Storytelling with Digital Technologies

Taylor Burke, Danielle Chambers, Emily Cheney, Meghan Goodwin, Sophie Hendrix, Faith King, Anna Manuel, Jenny Pydych, Alora Ross, Emily Taylor, Audrey Varney, Molleigh Walsh, Suther Bickford, Ashley Clark, Paige Dutterer, Leanna Farr, Ashley Greenleaf, Kali Litchfield, Liz Ouellette, Taylor Perkins, Jared Smelter, Hannah Stauffer, Amelia Sweatt, and Morgan Wellman

How might we encourage and support computational thinking in early literacy learning? In this session, preservice teachers share their explorations of the use of digital technologies to support the iterative and interactive processes of storytelling with visual programming languages to create digital content through conceptualization, problem solving, and design. *(Faculty sponsors: Meredith Swallow and Kathryn Will-Dubyak)*

Venue 11, Spenciner Curriculum Materials Center

Assistive Technology

1:30 - 2:30

Adventure Awaits: Explore the Assistive Technology Collection at Spenciner Curriculum & Materials Center

Makayla Wilson, Hunter Harrington, and Hailee Macomber

Have you ever wondered what assistive technology (AT) is or how it is used? Are you curious about 3D printing, telepresence robotics, or controlling computers with your eyes? Drop into the Center for Assistive Technology, located within the Spenciner Curriculum and Materials Center in the Education Center, to take a look. Faculty and students will be present to demonstrate some items from the AT collection, as well as answer questions that you may have about low-tech items, high-tech devices, and anything in between. *(Faculty sponsors: Kevin Good and Christine Spence)*

Venue 12, Education Center 114

Education

9:00 – 11:00

Perspectives on the Reggio Emilia Approach to Early Childhood Education

Ripley Biggs, Rowan Burns, Tia Cobb, Katie Hickey, Paige LeDuc, Valerie Pinkham, Allison Owens, and Carson Hope

Student participants in a travel course to Reggio Emilia, Italy, this spring will present their perspectives about the Reggio Emilia Approach to early childhood education. They attended a Student/Professor Study Group where they learned about the history, principles, and essential elements of this approach. They visited infant toddler centers and preschools in the city. Each student focused on a specific topic (e.g. nature, science, or art) in order to understand how these topics are integrated into the local schools. This approach sees the child as capable and resilient. Curriculum is designed around children's interests and features project-based activities and documentation. *(Faculty sponsors: Patti Bailie and Leigh Ann Fish)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch," South Dining Hall

1:10 - 2:10

Building Relevant Learning Opportunities for English Language Learners

Callie Bates, Danielle Bowler, Paige Carter, Jacqueline Gleason-Boure, and Michaela Wright

In this workshop, participants will learn about culturally sustaining pedagogy as a foundation for structures and strategies that provide opportunities for student centered instruction. The interactive sessions will focus on vocabulary development, designing appropriate assessments, using graphic organizers for writing. This presentation is appropriate for teachers of grades 3-12. *(Faculty sponsor: Kathryn Will-Dubyak)*

2:30 - 3:00

Bullying in Early Childhood

Brooke Carrier, Alana Cole, Toya Fournier, Jessica Howe, Julia Lowell, Nicole Pilote, Julia Preston, Shirlynn Sears, and Jessica Small

"No, you can't play here!" Do we consider this bullying or do we overlook this behavior because of the child's age? We will be discussing what bullying looks like in early childhood, as well as strategies that teachers and families can use to support all young children. *(Faculty sponsor: Christine Spence)*

Venue 13, North Dining Hall

Posters

Please note that all poster presenters are expected to be at their posters to address questions for at least one hour, either between 10:00 and 11:00 or between 1:10 and 2:10. Poster presenters must set up between 8:00 and 9:00 am. The poster session will be open from 9:00 am until 2:30. The poster presenters will remove their posters between 2:30 and 3:30.

Poster #1

Maine Tourism Moving Forward

Jed Stevens, Nolan Miler, Connor Dunn, Amanda Swart, and Justin Evans

Tourism is Maine's biggest industry. In 2017 tourists spent over \$6 billion in Maine, and supported nearly 106,000 jobs. A key player in getting tourists to visit Maine is the Maine Office of Tourism, who promote, market and advertise the wonder, beauty and uniqueness of Maine. On April 10, 2019, at the Maine Governor's Conference on Tourism, the Maine Office of Tourism will present its five-year plan (2019 – 2024) for promoting and marketing Maine as a premier tourism destination in the U.S. and around the world. In this poster session we will highlight and critique its key elements. *(Faculty sponsor: Frank Engert)*

Poster #2

Turn the Light(s) On: Farmington's 100 MW Solar Farm.

Grace DiMarco, Portia Hardy, Lily Scribner

In recent news, the town of Farmington, Maine is expecting the construction of a solar farm. Through research and interviews, we learned about how solar farms function, how they help our community, as well as the town's reaction towards this addition. We will try to answer the following three questions 1) how much power this solar farm will produce, 2) will this solar farm harm the surrounding habitat, and 3) could there be a hypothetical alternative distribution of the resources to place panels on residential houses within the town? (*Faculty sponsors: Peter Hardy and Douglas Reusch*)

Poster #3

Biotite mineral chemistry as an indicator of tectonic environment of granitoid magmatism

James Richard Fox, Elizabeth Prescott, Samuel Levasseur

Commonly the chemistry of minerals found in igneous rocks varies according to the environment in which those magmas have been formed. This can be a very important tool in examining paleo-tectonomagmatic scenarios, such as an Andean type subduction zone or a Himalayan collisional zone. Recently published information concerning biotite compositions reveals that they can be used to examine the tectonic environment where those igneous rocks formed. We will examine biotite chemistry from several intrusions in Maine, such as the Songo and Onawa plutons, to test this hypothesis. (*Faculty sponsor: David Gibson*)

Poster #4

Field relations, petrography and geochemistry of the Grindstone Neck dike swarm, Schoodic peninsula, coastal Maine

Robbie Knowles, Michael Chavez, and Audrey Elliott

Dike swarms are often emplaced during extensional plate tectonics and are therefore important in elucidating such events. Grindstone Neck, Schoodic peninsula, coastal Maine is host to a classic dike swarm that intrudes the local country rock, the Gouldsboro granite. Field relations indicate some cross cutting relationships that may indicate different generations of dike emplacement. The dikes are fine-grained, aphyric basalts although some slightly coarser grained diabase dikes are also present. Major, minor and trace element geochemical data will be used both to classify the dikes and also examine their tectonic affinity. (*Faculty sponsor: David Gibson*)

Poster #5

Petrography and Geochemistry of the Twin Lakes Granodiorite, Central Sawatch Range, Colorado

Forrest Meader

This presentation is on the Twin Lakes Pluton in the Central Sawatch Range, Colorado, which shows evidence of magma mixing in the form of mafic mineral layering, called schlieren, and medium sized orthoclase phenocrysts. These layers also host an increased number of rare earth elements (REEs). This presentation will go over the general geochemistry and petrography of the pluton as well as the a working hypothesis of how this magma chamber was intruded into by a larger hotter second magma chamber. (*Faculty sponsor: David Gibson*)

Poster #6

Emplacement levels of Devonian I-Type Granitoids of the Piscataquis Magmatic Belt, central and western Maine

Sean Brock

This study aims to examine the emplacement level of plutons in the PMB utilizing the Al-in-hornblende geobarometer. This necessitates that the granites have a metaluminous I-type mineralogy. The plutons examined in this study are the Songo granodiorite and the Onawa pluton. These plutons not only represent a range of ages but are located along traverses, which are both orogen parallel (NE – SW) and perpendicular to this (NW – SE). Therefore the focus of this study is to better understand the emplacement levels of the plutons of this suite and therefore elucidate the assembly of this block of continental crust. (*Faculty sponsor: David Gibson*)

Poster #7

Mineral Chemistry of the Songo and Onawa plutons, Maine

Jacob Violette, Bethany Abram, and Sean Brock

Mineral chemistry of igneous rocks varies distinctly and often indicates the crystallization history of the magma from which those rocks have formed. Mineral chemical data from the Songo and Onawa granitoid plutons have been obtained on their constituent minerals, namely plagioclase, biotite and hornblende. Therefore, we can examine the precise chemical characteristics of these minerals and classify them accordingly. In addition, we can investigate any chemical compositional zoning within these minerals that would indicate differing crystallization histories. (*Faculty sponsor: David Gibson*)

Poster #8

Forest Structure Effects on Late Winter/Spring Predator Prey Interactions among Arboreal Mammals in Central Maine

Haley Kerin, Jessica Brennan, and Connor Marland

The fisher (*Pekania pennanti*) and the North American porcupine (*Erethizon dorsatum*) are both semi-arboreal mammals in Maine. Often, these species' home ranges overlap in old growth and mature Eastern forests. Porcupines are one of the fisher's main prey sources. In the past 200 years fisher populations in Maine have diminished due to forest logging and trapping; however, recent changes in forest management have helped fisher populations increase in size. Our project is designed to quantify the presence and overlap of fisher and porcupine populations in newly regenerated forest habitats at two Kennebec Land Trust conservation areas. (*Faculty sponsor: Donelle Schwalm*)

Poster #9

How does Harvesting Pressure Affect Diversity of Mammal Communities in Western Maine?

Samantha Cross, Meghan Foye, Tristan Price, and Thomas Wing

To conserve land and species, property must often be managed to produce benefits for the people who use the land as well as the natural communities whose lives depend on it. The Kennebec Land Trust (KLT) owns and conserves many properties across Maine and is interested in the mammalian communities present at these properties. We conducted inventory/observational studies at 3 KLT properties in central Maine in order to elucidate how land management methods and natural habitats affect mammalian community composition. We

used camera traps, hair snares and track counts throughout late winter and early spring 2019 to conduct these surveys. *(Faculty sponsor: Donelle Schwalm)*

Poster #10

Habitat Associations of the Red Fox (*Vulpes vulpes*) and Grey Fox (*Urocyon cinereoargenteus*) in Western Maine

Hailey Mealey, Jerzee Rugh, Ariel Miller and Ben Higgins

Habitat associations of grey and red foxes in western Maine are not well understood or well researched. We set cameras in western Maine to locate these two fox species. Environmental data such as basal area, % forest cover, and % urban area was collected at each location to explore habitat associations of each species recorded. Recognizing environmental associations, both biological and anthropogenic, will improve understanding of the habitat relationships of both of these species and can be used as a step towards understanding the effects that land use may have on these species. *(Faculty sponsor: Donelle Schwalm)*

Poster #11

The Energy is Blowin' in the Wind

Kayla Begin and Kenzie McMahon

The Saddleback Ridge Wind Farm is a 12-turbine wind project undertaken in nearby Carthage, Maine. Completed in 2015, it currently produces enough energy to power 17,000 homes. But this amount of energy production and this large a project was bound to stir up controversy. We will talk about the benefits and drawbacks of wind farms and the Saddleback Ridge Wind Farm project in particular, local reaction towards the project, and the impact it will have on the surrounding environment. *(Faculty sponsor: Douglas Reusch)*

Poster #12

Antibiotic Resistance

Kyla Sturtevant

This project is designed to compare the types of bacteria present on the UMF campus in relation to antibiotic resistance. Due to overuse and misuse of antibiotic drugs over the years, antibiotic resistance has become a global health concern. Antibiotics have the ability to select resistant strains, which ultimately threatens the capacity by which common infectious pathogens and diseases can be treated. Resistant strains can be seen everywhere, including on the UMF campus. *(Faculty sponsor: Jean Doty)*

Poster #13

Impact of Ice Layers on March Snowpack Melt

Stephanie Dwinal, Chloe Kenyon, and Brianna McGrath

This study will explore the influence of air temperature and the presence of ice layers on spring snowpack depletion. The study location was a wooded area adjacent to the UMF FRC. Snowtubes were used to determine snow depth and the snow water equivalent weekly beginning in March. Hobo sensors buried in the snow at 10, 20, and 30 inches measured subhourly temperature and light above and below significant ice layers in the snowpack. These data will be compared to historical meteorological data to look for climate change indicators. *(Faculty sponsor: Julia Daly)*

Poster #14

Snowmelt Pulses and Ice Dams on the Sandy River

Sam Levasseur and Alex Sanford

The Sandy River is an important part of Farmington's identity, and this study will analyze historic ice out dates of the Sandy River and local air temperature to study the effects of climate change on the Sandy River's ice out time. We will monitor this year's spring change by photographing the layers of snow up and downriver. We predict a long-term trend that shows earlier ice-out dates because of warmer average air temperatures. Local ice-out dates are important to Farmington because ice constricts the flow of the Sandy, damming the river at the bridge as the ice piles up. *(Faculty sponsor: Julia Daly)*

Poster #15

Controls on Mountain Lake Ice-In and Ice Duration

Sean Brock, James Fox, and Robert Knowles

Ice-in is the establishment of permanent winter ice on a water body. Ice-in dates for Maine mountain lakes may be determined by autumn air temperature, elevation, surface area, mean depth, and secchi depth. By looking at these various environmental factors we can determine probable causes for the increased delay of inbound ice for Maine lakes. Increased temperatures are expected to decrease ice duration and cause ice-in to occur later in the season. *(Faculty sponsor: Julia Daly)*

Poster #16

Landscape Controls on Snowpack Variability

Will Bernier, Cody Kostro, and Alan Young

This project will examine snowpack with different canopy cover, substrate, elevation, and north and south facing slopes. Our project will compare the degree of spring melt-in by measuring snow depth and SWE (snow water equivalent) at representative locations around Farmington. Differences in position and canopy cover should impact snow surface temperature, resulting in uneven snow loss. These measurements are important because they give us insight on why snow melts at variable rates, and this variability can help us understand where snow may melt and which parts of our local watershed hold water the longest. *(Faculty sponsor: Julia Daly)*

Poster #17

Wilson Lake Winter Zooplankton

Stuart Cole, Isaiah McFarlane, and Rich Leblanc

Zooplankton populations are indicators of lake water quality and general health. Data on their populations is commonly collected throughout the summer in many watersheds and used in conjunction with other data sets to monitor lake health. However there is little to no data on what happens with their populations during the winter under the ice. We collected weekly sub-ice zooplankton and water samples from January- March on Wilson Lake (Wilton, ME). Using these data we looked for correlations between changes in water quality, ice / snow thickness, and zooplankton composition. We predict previously unnoted changes in zooplankton populations during spring melt. *(Faculty sponsor: Julia Daly)*

Poster #18

The CMP Corridor - What's in it for ME?

Kelsey Creamer and Bryanna Franklin

The Central Maine Power transmission line, New England Clean Energy Connect, is slated to bring hydro-power from Hydro-Quebec in Canada, to Massachusetts. However, to complete the corridor, it will have to travel through Maine. The NECEC extends 145 miles through Maine by creating new corridors and expanding existing corridors. The route of the NECEC will be presented. The advantages and disadvantages of the NECEC will also be presented. The local positions of affected towns will be examined, including the impacts and benefits to all affected Mainers. *(Faculty sponsor: Peter Hardy)*

Poster #19

Biomass for BioMaine

Suzanna Dibden and Jotham Miller

The UMF Biomass Plant has proven to be a great asset to Farmington's economy, but how does it impact our environment? The use of a biomass plant in Farmington has stirred controversy, drawing criticism and praise alike from the town's residents. In this project, we will examine the benefits and drawbacks of biomass fuel, both in general and with specific regard to the UMF plant. We will also consider what steps Maine might take to protect our environmental future and what place the UMF Biomass Plant has in that future. *(Faculty sponsors: Peter Hardy and Douglas Reusch)*

Poster #20

Variable Zooplankton Communities in Maine's High Elevation Lakes

Alfred Odong

This research examines different elevation, ice breakup timing, water chemistry, and other attributes across nine high-elevation Maine ponds, and what these differences mean for food webs. We used previously-collected data to identify and measure zooplankton samples and identify assemblages differences across ponds. Ponds were grouped based on invertebrates communities similarities, and further identified variables correlated with taxonomic response. Lastly, we identified zooplankton growth potential and predation effects in lakes with and without fish. This research describes zooplankton community composition and food web characteristics, identifies watershed and lake characteristics important to specific taxa, and gives insight on the ecology of these ecosystems. *(Faculty sponsor: Rachel Hovel)*

Poster #21

McKinley: An Isolated, Annotated DE1 Cluster Bacteriophage

Zachary Ellsworth, Dawson DiBiase, Spenser Grasse, and Andromida Grondin

Bacteriophages are good model organisms to help develop our understanding of viruses. This study was conducted to identify a new bacteriophage, and annotate its genome. *Gordonia terrae* phage McKinley was found in a water sample in Farmington, Maine. It was isolated, purified, amplified, and DNA was extracted. The phage found was a subcluster DE1 siphoviridae phage with 87 genes and 59,022 bp in its genome. McKinley contains a MerR-like helix-turn-helix DNA binding protein, which helps regulate transcription. McKinley will later be added to a global database for assistance in viral research. *(Faculty sponsor: Timothy Breton)*

Poster #22

Brain Expression Analysis of Candidate Endocrine Receptors in Black Sea Bass (*Centropristis striata*) during Sex Change

Brooklyn Brown and Andrea Stemm

Little is known about brain gene expression associated with sex reversal in black sea bass (*Centropristis striata*). This study focused on five endocrine receptors expressed in the brain that are associated with sex differences, behavioral changes, or vertebrate brain development. Genes were identified in a sequenced brain transcriptome, confirmed using sequencing, and expression was measured in male, female, and sex-changing fish. These genes were then combined with 10 previously studied candidate genes. In combination with these genes, most expression patterns were similar except for lower expression in sex-changing fish, and elevated *avtr1a* expression was detected in three individuals. *(Faculty sponsor: Timothy Breton)*

Poster #23

Discovery and Analysis of Subcluster DE3 Phage Roadkill from Wastewater Treatment Facility

Mikahla Searles, Naomi Moulton, Liz Nadeau, and Paige Ring

Bacteriophages are useful tools when studying antibiotic resistance and understanding protein function. A bacteriophage able to infect *Gordonia terrae* was isolated from a wastewater treatment facility in Farmington, Maine, named Roadkill. Roadkill is a subcluster DE3 siphoviridae phage, produced medium clear round plaques. Roadkill's genome consisted of 55,939bp and 84 genes. The circularly permuted genome in Roadkill contains genes that code for terminase small and large subunits. This genome was being annotated and gene functions will be discussed. Roadkill was added to a bacteriophage database that may be utilized when doing research on antibiotic resistance and phage therapies. *(Faculty sponsor: Timothy Breton)*

Poster #24

Calligraphy: Symbolism of Society

Alex Mangini, Allen Cherkis, Cassy Blake, Dusty Stepak, Ian Walsh, Joey Riley, Josie Jameson, Katie Kent, Kelsi Fortin, Kylie Shepherd, Michael Sirois, Nick Raupach, Samantha Brillhart, Sharon Buker, and Terri Potvin

"Calligraphy: Symbolism of Society" is a first year seminar course. Students from this class have researched a specific era of a civilization/society that uses a non-Roman-alphabet-based form of writing that is considered a "beautiful writing" (calligraphy). They will share some of the history, sociology, and geography of that society; information about the calligraphy and calligraphers in that era; as well as how calligraphy is representative of that society at that time. *(Faculty sponsor: Theresa Overall)*

Poster #25

Using Technology for Better Assessment of Student Learning and Understanding

Alex Leadbetter and Isaiah Reid

Designing curriculum, instruction, and assessment is the core of the teaching profession. Secondary Education students learn how to use the Understanding by Design model to develop units in their content area. They have selected three of the assessments in their unit that can be enhanced by the use of a technology and created prototypes of what that assessment might look like. They will share with you an overview of their unit and the assessment prototypes they have created. *(Faculty sponsor: Theresa Overall)*

Poster #26

PSY 400 Research Methods Independent Projects: Posters

Samuel Burchill, Adrienne Chandler, Angelica Jones, Damian Ladd, Samantha Melgar, Kamryn Michaud, Robyn Nix, Libby Oullette, Branden Robinson, Carter Shaw, Amber Souve, Christina Taylor, and Hadlee Yescott

Fourteen Psychology students will present their independent research projects: how men and women represent themselves on Tinder; how gender impacts perceptions of a fight; how race impacts perceptions of a verbal argument; perceptions of Asian-American and European-American students; perceptions of problem drinkers; how attachment style impacts perceptions of others' relationships; the role of attire on helping behavior; how music impacts puzzle solving; expectations about non-binary individuals' romantic success; how a harsh basketball coach is viewed; how dogs soothe anxiety; the impact of face-to-face conversation vs. texting; how introversion and neuroticism impacts attraction and how a lone-wolf teammate is perceived. *(Faculty sponsor: Karol Maybury)*

Poster #27

Bringing STEM to Summer Camp

Kyla Antonioli

During the summer of 2018, I took the opportunity to take my internship experience at Camp Akeela a step further and plan a new curriculum with the activities director. The STEM Tent program was available to 9th and 10th graders and assisted in the development of their communication, teamwork, and creative problem solving skills through various science and math activities. The final challenge was an escape room which the teenagers designed, built, and then ran for the younger campers. Although there were some bumps along the way, the resulting product brought campers together to solve puzzles created by their peers. *(Faculty sponsor: Natasha Lekes)*

A Tribute to Michael D. Wilson

Michael D. Wilson graduated from UMF in 1976. He loved teaching, helping children grow and develop. He reached out to help people whenever he could. He also had a deep love for the beauty and serenity of the wilderness where he felt a deep sense of connection.

Michael chose to live his life in a manner that was true to his beliefs. Many people remember him as a special person and a good friend. He died in a tragic accident in 1977, just as he was preparing to begin a new teaching position in a small town in Aroostook County.

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