

Symposium

Student Works

2018

Symposium 2018

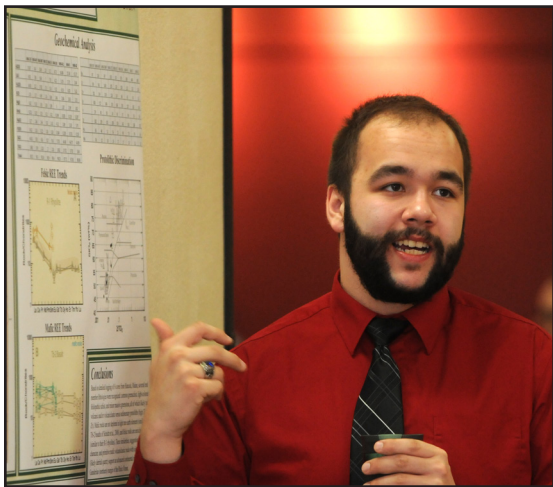
University of Maine at Farmington

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2018 Program of Events

Celebrating Undergraduate Research
and Creative Works

Wednesday, April 25



University of Maine Farmington Arts Night - Tuesday, April 24

Welcome to the Michael D. Wilson Symposium

April 25, 2018

Credit Ancient Greeks with the **symposium**, one of their many contributions to education and learning. As opportunities for debate, exchange of ideas and social interaction—fueled by ample food and drink—symposia built a social and intellectual foundation for the vibrant community the Greeks created for themselves and posterity.

UMF is pleased to follow suit with our campus-wide **Symposium** celebrating undergraduate research and creative achievement. Together with Arts Night, Symposium showcases what's possible when you mix student passion, ambition, hard work, creativity and talent with faculty joy, mentorship and care. It is no surprise that many members of the UMF community count Arts Night/Symposium as their favorite and most uplifting time of the year.

It is possible that Greek participants of long ago engaged, as we will in the 2018 Arts Night/Symposium, with adolescence, music as a means of literary adaptation, cosmochemistry, our place in nature, microbrews, and witchcraft, but it's a good bet that our UMF presenters are far ahead on William Pitt Fessenden, galanin expression in zebrafish, cattle ranching in the Amazon Basin, Maine's lobster industry, race and profit in college football and dozens of other fascinating topics you'll encounter in posters, presentations and installations on campus.

This beloved UMF tradition is the product of hard work, inventiveness, financial support and deep commitment. For these we offer our thanks to the University Culture Committee (Misty Krueger, Paul Stancioff, Olivia Donaldson, Patti Bailie), our vital faculty mentors, devoted staff, generous supporters of undergraduate research, and, not least, the enterprising and intrepid students who put before us the fruits of their labor.

Feast heartily on Symposium, UMF's annual groaning board of creative and intellectual sustenance.

Kathryn A. Foster

President

For nineteen years, 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, 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. Indeed, as the English writer John Milton proclaimed, "I cannot praise a fugitive and cloistered virtue, unexercised and unbreathed." For all the good work that goes on in our classrooms throughout the school year, Symposium Day offers a chance to uncloister that work, to let it exercise and breathe, and it is a privilege to once again take part in the richness of such an event.

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

Eric C. Brown, Interim Provost and Vice President for Academic Affairs

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, Associate Provost and Dean of the College of Education, Health, and Rehabilitation

Some of my most rewarding experiences at UMF have been my opportunities to work with talented students on research projects, so it is not surprising that my favorite day on the academic calendar is Symposium Day. This is a chance to join these young scholars at the end of a long journey involving months of hard work. With a buffet of talks, poster presentations, art exhibits, and readings, your only regret will be your inability to see everything this day has to offer. Thank you to all of the presenters for their efforts and providing a day when we can all be a kid in the academic candy store.

Nic Koban, Associate Provost

This symposium is organized by the University Culture Committee:

Misty Krueger (Chair)

Paul Stancioff

Patti Bailie

Olivia Donaldson

Photo and cover thanks to Bob Bailie

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Special Presentation

Fusion Center Room 101

Wednesday, April 25 at 7:00 PM

Libra Professor Christos Teazis

New Turkey: Towards a New Islam

During the last six to seven years, the term “New Turkey” has begun to be established in the Turkish political discourse. Therefore, it is considered useful to focus on the characteristics of this “New Turkey” or the “new red lines” that are going to determine the function of the socioeconomic and sociopolitical institutions in the next decades. In my presentation I will focus on:

- a. *The transformation from parliamentary democracy to presidential democracy (close to the United States model).* With the referendum held on October 21, 2007, 68.95% of Turkish voters opted for a model where the people choose the president. After the last referendum held on April 16, 2017 the political system switched from a multi-party to a two party system (Democrats and Republicans).
- b. *The transformation from a French model of secularism (laicite) to an Anglo-Saxon model of secularism.* According to the old red lines the notion of secularism stressed that in your private life you will freely experience the Islamic religion as you wish, but in the public sphere you will behave according to the principles of the state. Once the Justice and Development party rose to power, the content of secularity drastically transformed the principle of laicite and the Anglo Saxon model of secularism began to prevail. As a result, Islam, previously confined to the private sphere, entered the public sphere. A characteristic example of the above claim is the issue of the headscarf that used to be strictly limited to the private life of the citizens. Even though the headscarf had already begun to appear in the public sphere, and particularly at the level of regional government, with the Justice and Development Party it extended into the public and political realms.

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 Jonathan Cohen, Professor of Philosophy. He will speak at 11:40 in Lincoln Auditorium. All students, faculty, and staff are invited.

2017-2018 Trustee Professor

The Music of Nietzsche's Life

Jonathan Cohen, 2017-2018 Trustee Professor

The German philosopher Friedrich Nietzsche (1844-1900) is famed (and notorious) for his radically critical views of religion, morality, democracy, etc., but the subject he cared and wrote most about was actually music. Four of his fifteen books are wholly devoted to music, along with dozens of pages in his other works. He was himself a trained musician—his friends raved about his skill as an improviser at the piano—and he wrote music of his own as well. My project as Trustee Professor has been to pull together his thoughts about music as they develop through his career and to try to describe the philosophy of music they entail. In this presentation I will give an overview of the project and share my conclusions. I will focus in particular on the way Nietzsche's changing views about the opera composer Richard Wagner—first devotion, then separation, and finally virulent opposition—define and inform the three periods of his philosophical career, as well as what we can learn from his final embrace of Bizet's *Carmen* as Wagner's foil.

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

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 was 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 200 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.

2017 – 2018 WILSON FELLOWS

Bryce Neal - *Stratigraphic and Structural Analysis of Saddleback Wind, Carthage, Maine*

Faculty Advisor: Douglas Reusch

Curtis Cole - *Enchanted Assemblages: Creative Pedagogy and Thomas Malory's Le Morte Darthur*

Faculty Advisor: Daniel Gunn

FALL 2017 WILSON SCHOLARS

Hannah Calkin - *Writing, Editing, Compiling, and Publishing a Book of Poetry*

Faculty Advisor: Shana Youngdahl

Jenna Sanders - *Microbrew Culture in the State of Maine: Passing Trend or Catalyst for Revitalized Civic Engagement?*

Faculty Advisor: George Miller

Jonathan Petrey - *The Cyborg Within The Materialist Dialectic*

Faculty Advisor: Katrazyna Randall

Lindsay Gorman - *Perspectives of Disability in Tanzania: A Case Study of Barriers to Inclusion in a Developing Global South Nation*

Faculty Advisor: Kate MacLeod

Michael Taylor-Hampton - *Exploring Multiplayer Game Design*

Faculty Advisor: Gail Lange

William James Garske - *Eulerian Signed Graphs*

Faculty Advisor: Lori Koban

SPRING 2018 WILSON SCHOLARS

Nathaniel Elias Kidson - *Extra-Dimensional Extensions of Hilbert Space-Filling Curves*

Faculty Advisor: Nicholas Koban

Brianna Leonard - *Mineral Chemistry of Some S-Type Granites from West-Central Maine*

Faculty Advisor: David Gibson

Daniel Mason and Chase Rerrick - *Mineral and Whole-rock Geochemistry of Mafic Dikes, Southwestern Maine*

Faculty Advisor: David Gibson

Danica Lamontagne - *Ecotourism in Maine: Successes and Opportunities*

Faculty Advisor: Linda Beck

Elliott Eno - *Mediated Memory and Identity*

Faculty Advisor: Katrazyna Randall

Drew Kelso - *Predicting Runs Scored in Baseball*

Faculty Advisor: Chris Bennett

William Doray - *William Pitt Fessenden: Political Scoundrel or Political Martyr?*

Faculty Advisor: Chris O'Brien

Richard Southard - *Song to Sentence: Music as a Source of Literary Adaptation:*

Faculty Advisor: Michael Johnson and Steven Pane

Layne Nason - *A New Information Systematic for Maine's Plutonic Rocks*

Faculty Advisor: David Gibson

Sarah Haas - *Contact Theory and Implicit Bias Among LGBTQ+ and Heterosexual/Cisgender People*

Faculty Advisor: Karol Maybury

Allyson Hammond - *The Impact of Anecdotal Evidence and Personalized Stories on Authoritarian Beliefs*

Faculty Advisor: Karol Maybury

Lauren Stetson - *Intensive Nonfiction Practicum*

Faculty Advisor: Eireann Lorsung

Arts Nights 2018

On Tuesday, April 24, as an exciting prelude to UMF's University-wide Symposium Day, Arts Night will highlight the projects of Shane Waters and Josey Lewis, Visual and Performance Arts seniors, from 7 pm until 8 pm. These projects will be preceded by back-to-back artistic, sound, cultural and theatrical presentations throughout the Emery Community Arts Center, beginning at 5:30 p.m. and continuing into the evening. Admission is free and all events are open to the public.

Visual and Performance Arts Senior Projects

"*Sound and Spirit* will be a physical, emotional, and spiritual journey that explores how individuals are affected by what we experience, making us aware of how superficially we look at the world day-to-day. By exploring intangibles such as sound and spirituality, we may ultimately connect better to the world around us and to the individuals that inhabit it, and find we are better for it."

Shane Waters – A Sensorial Experience

The sensorial experience of our relationship within sound and music has been increasingly more popular in research due to responses of heightened or relaxed emotions. This project intends to manipulate pitch (frequency), amplitude (intensity), and timbre (waveform) to explore individual experiences through an interactive sound installation. Shane's sound installation can be experienced on Monday April 23 through Wednesday, April 25 in Merrill Hall. Please look for posters announcing times.

Josey Lewis – Dear God, Oh God

Dear God, Oh God is a one-person show that invites the audience to observe five personal dialogues with God through the different stages of an individual's life. Exploring the internal struggles of belief and a search for some form of resolution, the work grapples with what our own personal connection with God might be and the complex relationship it arouses.

Venue 1, Lincoln Auditorium

Wilson Scholars, Trustee Professor

9:00 - 9:20

Cryptic Structure at Saddleback Wind and First Dates from the Rumford Inlier, West-Central Maine

Bryce Neal

Extensive bedrock exposures on Saddleback Wind and Bald Mountain, located in Carthage, Maine, provide an excellent laboratory to study the dynamic geologic history of the Appalachians right in our backyard. Recent field mapping on Saddleback Wind has revealed a new set of marker beds, the Royal Flush sequence, three times repeated on cryptic thrust faults. Also, using detrital zircon geochronology, new ages were calculated for rocks on Saddleback Wind and from the New Vineyard Quarry of supposedly similar age. These new age data question current geologic thinking and demand a reevaluation of west-central Maine geology. *(Faculty sponsor: Douglas Reusch)*

9:20 - 9:40

Contact Theory and Implicit Bias Among LGBTQ+ and Heterosexual/Cisgender People

Sarah Haas

This study explores whether there is a correlation between increased interpersonal contact between LGBTQ+ people, and heterosexual/cisgender people and reduced bias. Previous research has shown that individuals who have a more diverse social network harbor less feelings of prejudice towards other groups, and this theory holds true for heterosexual/cisgender individual's feelings of the LGBTQ+ community. However, contact theory has not been applied to LGBTQ+ individuals feelings of the heterosexual/cisgender community. Therefore, the results of this study could be used to improve positive relations between LGBTQ+ individuals and their local communities by providing more information on social behaviors. *(Faculty sponsor: Karol Maybury)*

9:40 - 10:00

The Impact of Anecdotal Evidence and Personalized Stories on Authoritarian Ideology

Allyson Hammond

This study explores a connection between Right-Wing Authoritarianism (RWA) and the tendency to blame individuals for their circumstances. Participants in one condition will read short anecdotes about a welfare recipient and an immigrant, both of whom are struggling in some way, and then answer questions indicating whether they believe these characters are to blame for their situations. In the second condition, participants read longer, more humanizing anecdotes about the same individuals. We hypothesize that knowing more about a person's story reduces the likelihood of others blaming them, but that a high RWA score will mediate this effect. *(Faculty sponsor: Karol Maybury)*

10:00 - 10:20

Ecotourism in Maine: Successes and Opportunities

Danica Lamontagne

Since the early promotion of ecotourism under the Baldacci administration, the development of sustainable forms of tourism, with minimal environmental impacts and targeted benefits to the local community and economy, has stalled in Maine. Although several tourism providers have developed successful sustainable business models, many initial goals for promoting ecotourism that were established in the early 21st century

remain unmet today. Through semi-structured interviews with ecotourism operators and other governmental and non-governmental tourism stakeholders, this research analyzes the history of promotion of ecotourism in the state to identify past constraints and current opportunities to expand this sector of Maine's economy. *(Faculty sponsor: Linda Beck)*

10:20 - 10:30

Break

10:30 - 10:50

A Reading of Select Poems from "Pomegranate Odyssey"

Hannah Calkin

Why are fairy tales and mythology of such fascination to modern audiences? Why are we still talking about them and adapting them into all forms of media and literature? These questions are central to Hannah Calkin's book-length poetry collection "Pomegranate Odyssey" that she has composed during her Wilson Scholarship. The poems come from someone who genuinely loves fairy tales and sees nothing wrong with the portrayal of feminine women. In particular they are interested in taking the sexist aspects of fairy tales, such as femininity and virginity, and using them to humanize and de-stigmatize the female protagonists. *(Faculty sponsor: Shana Youngdahl)*

10:50 - 11:10

Predicting Runs Scored in Baseball

Drew Kelso

Using historical baseball game logs, data mining techniques have been implemented to determine the importance of a variety of baseball statistics. Specifically, we have measured how each statistic is predicted to affect the number of runs scored in a baseball game. The purpose of this is to find trends that can help baseball teams and organizations strategize and build their lineups. In addition to this, we will be able to predict runs scored based on these statistics which will allow us to determine the efficiency of a lineup as well as the value of an individual player. *(Faculty sponsor: Christopher Bennett)*

11:10 - 11:30

Higher Dimensional Hilbert Curves

Nathaniel Kidson

A space-filling curve is essentially a 1-dimensional line that traverses a larger area of higher dimension until it fills it up. Hilbert Curves are special types of space-filling curves that happen to be well-defined and continuous mappings of the real line. We will use this fact to form more complicated hilbert-like curves. Can we map any infinite real space into a higher dimensional "box"? If so, can we find all such ways of doing so? Come find out! *(Faculty sponsor: Nicholas Koban)*

11:35 - 11:40

The Presentation of the Walter Sargent Undergraduate Research Mentor Award

In 2012, the Undergraduate Research Council (URC) 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 2018 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

The Music of Nietzsche's Life

Jonathan Cohen, 2017-2018 Trustee Professor

The German philosopher Friedrich Nietzsche (1844-1900) is famed (and notorious) for his radically critical views of religion, morality, democracy, etc., but the subject he cared and wrote most about was actually music. Four of his fifteen books are wholly devoted to music, along with dozens of pages in his other works. He was himself a trained musician—his friends raved about his skill as an improviser at the piano—and he wrote music of his own as well. My project as Trustee Professor has been to pull together his thoughts about music as they develop through his career and to try to describe the philosophy of music they entail. In this presentation I will give an overview of the project and share my conclusions. I will focus in particular on the way Nietzsche's changing views about the opera composer Richard Wagner—first devotion, then separation, and finally virulent opposition—define and inform the three periods of his philosophical career, as well as what we can learn from his final embrace of Bizet's *Carmen* as Wagner's foil.

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 1:30

Eulerian Signed Graphs

William Garske

Signed graphs are graphs with edges that have positive and negative labels. Eulerian graphs are a well-studied object in mathematics. I am working on combining these ideas by figuring out how to define an Eulerian Signed Graph. (*Faculty sponsor: Lori Koban*)

1:30 - 1:50

Chizzle Wizzle: Minstrelsy in Maine During the 20th Century

Connor Wagner

From 1891 to 1964, Cony High School hosted an annual show in blackface called Chizzle Wizzle. As a former student, William Howes claimed it was "created to raise money for the Cony High School football team to buy new uniforms." Yet this alone is not enough of an explanation of the longevity of this Maine minstrel show. This presentation asserts, "Chizzle Wizzle remained black face until 1964 as a result of its profitability, a paucity of African Americans living in the state, and the fact that for many years the faculty and students did not believe it was racist." It was, however, the rising Civil Rights movement that convinced them to abandon the blackface show. (*Faculty sponsor: Christopher O'Brien*)

1:50 - 2:10

William Pitt Fessenden: Political Martyr or Political Traitor

William Doray

On March 26, 1868 in the halls of the Senate, President Andrew Johnson was on trial for "high crimes and misdemeanors." His fate hung on the votes of six Republican Senators, including William Pitt Fessenden of Fryeburg, Maine. At the conclusion of the trial, Johnson was acquitted and the questions swirled: Why did these Senators vote against the Republican party's wishes? Why was Johnson victorious when he had acknowledged the underlying charge? Some believe that the six were blackmailed; others believe it that Fessenden and the others feared Johnson's replacement more than they did the President. This presentation, looking at Fessenden's own writings and other contemporaneous accounts, argues that Fessenden's sense of

right prevailed: Removing Johnson might destroy both the country and the party (*Faculty sponsor: Allison Hepler*)

2:10 - 2:30

"Ways of Seeing" after John Berger and Teju Cole

Lauren Stetson

Race, gender, photographs, sight. How is how I've been taught to see related to my experience of race and gender? How do I move through ideas of what I see to understand how I see? What role does seeing play in structures of power? This collection of essays tries to ask questions that I find uncomfortable to think about, but are necessary to understand my own perspective and relation to the world. (*Faculty sponsor: Eireann Lorsung*)

2:30 - 2:40

Break

2:40 - 3:00

Enchanted Assemblages: Adapting Thomas Malory for the Modern Age

Curtis Cole

Thomas Malory brought the Arthurian legend as we know it today to life. His epic, *Le Morte d'Arthur*, synthesized disparate pieces of the legend scattered over hundreds of years into a unified narrative. Now, hundreds of years after *Le Morte d'Arthur*, I present *Enchanted Assemblages*—a multi-media adaptation of Malory's text. Composed of an original narrative inspired by Malory, *Enchanted Assemblages* is told through writing and artwork alongside videos and interactive fiction. This is a long-running project which will continue far into the future. Come and see the beginnings of new Arthuriana. (*Faculty sponsor: Daniel Gunn*)

3:00 - 3:20

Perspectives of Disability in Tanzania: A Case Study of Barriers to Educational Inclusion in a Developing Global South Nation

Lindsay Gorman

The study of disability, access, and inclusion in developing and post-colonial nations, particularly in the Global South, is an emerging area of research in the fields of disability studies and inclusive and special education. Recent literature evidences that people and students with disabilities in developing and postcolonial nations are one of the most vulnerable and marginalized social groups in the world, and they face a multitude of barriers in their daily lives. This presentation will explore the presenter's travels to Tanzania, teacher interviews, and analyze the possible reasons for this perception of disability in this country. (*Faculty sponsor: Kate MacLeod*)

3:20 - 3:40

Song to Sentence: Music as a Means of Literary Adaptation

Richard Southard

Many pieces of literature have been described as "musical" and "rhythmic," but how exactly do the arts of music and writing compare to one another? By drawing on examples such as the poetry of Langston Hughes and Michael S. Harper, this project reveals the connections between various musical genres and styles of writing. In addition to comparing different theories of music and literary adaptation, this project also uses its research to construct several pieces of writing adapted from different music genres, including jazz, ambient, drone, and other experimental genres. (*Faculty sponsor: Michael Johnson*)

Venue 2, C-23, Roberts Learning Center

Honors, Humanities

9:00 - 10:40

HON 177 Research on Adolescence

Emily Mcglaufflin, Gabe Reed, Crystal Macomber, Angelica Khan, Katie Brown, Taylor Burke, Emma Bennett, and Jessica Small

Students from Misty Krueger's spring Honors 177 composition class will present their research on adolescence. (*Faculty sponsor: Misty Krueger*)

10:40 - 10:50

Break

10:50 - 11:10

***Pride and Prejudice's* Elizabeth Bennet's Relationships with Men**

Prescilia Ganache

My presentation on Jane Austen's 1813 novel, *Pride and Prejudice*, examines protagonist Elizabeth Bennet's relationships with men, from her father to her love interest, Mr. Darcy. Elizabeth encounters different male figures, and they all bring something to her life and to her character. My argument focuses on how her relationship with her father and the character he embodies leads to who she becomes as a person and characterizes her final relationship with Darcy in the novel. (*Faculty sponsor: Misty Krueger*)

11:10 - 11:30

Wisdom's Soil: Reflections on the Value of Intergenerational Classrooms

Kyla Antonioli, Oaklin Blaisdell, and Charity Lafrance

The Values and Vision statement of the University of Maine at Farmington affirms that "the University challenges students to be active citizens in a campus community...[and] teaches them the humility to seek wisdom from others." The typical UMF classroom is comprised of young adults in pursuit of a college degree. The purpose of this presentation is to explore what happens when older adults are invited to participate in classroom discussions. Two recent intergenerational seminars will receive special attention: (a) an exploration of the cultural meaning of the term "wisdom", and (b) a discussion of the challenge of caring for aging relatives. (*Faculty sponsor: Steven Quackenbush*)

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 2:30

Live From Farmington: Creating Our Own Television Productions

Joshua Reilly, Alexis Pickens, Caitlyn Rollins, Ella Russell, Amelya Tibbetts, Amelia Sweatt, Justice Merrill, Brooke Mcelman, Megan Dickinson, Charles De Haas, Brianna Dugan, Hailee Ingerson, Hunter Mcdaniels-rossiter, Hannah Karcher, Adlin Chaparin, and Courtney Withey

Students from FYS100: Television and American Culture will share the TV productions they created in collaboration with Mount Blue TV. The productions range from a parody of *Law and Order* to an on-campus cooking show to a student-led talk show. After sharing their productions, students will answer questions and discuss their television production processes. *(Faculty sponsor: Mary Ellms)*

2:30 - 2:40

Break

2:40 - 5:20

Honors Program Thesis, Creative Project and Enhancement/Experience Credit

Carson Hope, Elizabeth Kane, Charity Lafrance, Kyla Antonioli, Julie Guerra, Oaklin Blaisdell, Aislinn Forbes, Tyler Gadaire, and Astra Pierson

Honors Program students will have an opportunity to practice their HON499 thesis or creative project defense before presenting to the Honors Council in May. Students will also share their process in earning credit through Honors Enhancement and Honors Experience. The Enhancement credit is earned by identifying a UMF course and enhancing it to meet HON requirements. Experience is earned outside of a classroom such as travel or an internship. These credits are then applied toward Honors Certificate, University Honors, and University Honors Scholar status. Part of the requirement to earn Honors Enhancement and Experience credit is to share their overview with others. *(Faculty sponsor: John Messier)*

Venue 3, Thomas Auditorium

Science, Science Education

9:00 - 9:20

Differential Gene Expression During Sex Change in the Black Sea Bass (*Centropristis striata*)

Jacob Montgomery and Katherine Greenlaw

Research regarding sex change in the commercially valued teleost fish black sea bass (*Centropristis striata*) is limited. In this study, juvenile tissue transcriptome assemblies and RNA-seq were analyzed, and genes putatively involved with sex change were identified. Partial gene sequences were verified, and expression was assessed using qPCR. Gene assays were conducted with brain and gonadal cDNAs from fish induced to change sex. Three genes exhibited significantly different expression during sex change: *rif1* and *esr1a* in the gonads, and *map6* in the brain. These preliminary results may be used in further studies to characterize sex change in black sea bass. *(Faculty sponsor: Timothy Breton)*

9:20 - 9:40

RNA Expression of Bone Morphogenetic Protein 2 (BMP-2b) in Zebrafish Tissues

Brennah O'Connell

Various tissues throughout the body use BMP-2 for important processes, including bone osteogenesis and growth factor activity. Quantifying expression levels of the hormone can lead to a better understanding of its different roles. Zebrafish, a well-studied model organism, were used to determine the expression levels of BMP-2b in the bone and heart tissue. Tissues were dissected from mature male and female zebrafish, and RNA was extracted and used in qPCR. Results of expression levels will be discussed. Expression information could provide clues regarding the role BMP-2 plays in stem cell differentiation into osteoblasts. *(Faculty sponsor: Timothy Breton)*

9:40 - 10:00

Investigating Galanin Expression in Zebrafish (*Danio rerio*)

Nicole Mercier

Galanin is a hormone whose involvement within the body is largely unknown, but has been hypothesized to have a role in the action potential in neurons. The aim of this study is to determine the prevalence of Galanin within the brain and digestive tract, dissected from zebrafish (*Danio rerio*). RNA was then extracted and Quantitative PCR was used to determine the expression levels of the hormone. The results will help to bring a better understanding to what organs Galanin is present in and help further studies better understand its role in the body. *(Faculty sponsor: Timothy Breton)*

10:00 - 10:20

RNA Expression of Brain-derived Neurotrophic Factor in *Danio rerio*

Jacob Montgomery

Brain-derived neurotrophic factor (BDNF) plays important roles within the central nervous system including synaptic plasticity and neuronal survival. Previous studies have found low BDNF levels to be a predictor of neurodegenerative disorders within patients. BDNF was studied in the zebrafish (*Danio rerio*), an important biomedical model. The purpose of this study was to identify the expression levels of BDNF in the forebrain and heart of the zebrafish. RNA extractions were performed, and real time quantitative PCR was used to identify gene expression levels. These results may validate previously done research on the expression of BDNF in tissues. *(Faculty sponsor: Timothy Breton)*

10:20 - 10:25

Harvey Aft Award for Excellence in Chemistry

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

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. *(Faculty sponsor: Mariella Passarelli)*

10:25 - 10:30

Break

10:30 - 10:50

Service Animals: Use and Controversy

Lindsey Locklear

For thousands of years humans have had domestic animals that have served many purposes. More recently, people have been training animals to act as service assistants. These service animals perform many functions which can include guiding the blind, alerting diabetics to fluctuating glucose levels, and acting as physical support for an unsteady person, among many other tasks. Because the use of service animals has increased recently, the criteria and laws surrounding their use in public are vague. This issue along with the increasing problem of "fake" service animals in society will be discussed. *(Faculty sponsor: Sarah Sloane)*

10:50 - 11:10

Integrating Virtual Reality into the Elementary Science Classroom

Sophia Manning, Nicholas Minor, and Kayla Tremblay

The advantages and disadvantages of using VR in the classroom change with each new development in the field. The current state of VR offers some interesting possibilities. We will examine the use of VR to teach science to elementary and middle school students. A demonstration targeted to the fifth-grade level will show how multiple methods can be combined to teach a science topic. This presentation will incorporate principles laid out in the Universal Design for Learning (UDL) and audience participation is welcome! While this assignment was created for an education class, it can be adapted to fit multiple contexts. *(Faculty sponsor: Carole Lee)*

11:10 - 11:30

Teaching 4th Grade Earth Science: A Unit Plan

Kyleigh Roberts and Lydia Macdonald

While taking our Science methods course, we developed a fourth-grade Earth Science unit plan. To ensure it would be a beneficial experience for students we used our knowledge from prior teaching experiences, aligned it with the Science Maine Learning Results, and used the 5-E model, a model based upon having the students engage with, explore, explain, extend and evaluate their knowledge of science topics. Our specific goal was to remove common misconceptions about the day and night cycle while also integrating language arts and math content. *(Faculty sponsor: Carole Lee)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 1:30

Terrestrial Geochemistry and Meteorite Cosmochemistry

Daniel Mason

This project attempts to give the audience a deeper understanding of and provide them with a more in-depth analysis about meteorites. This is achieved by introducing pertinent terminology used in classifying and analyzing meteorites, explaining the processes through which meteorites can be properly analyzed, and discussing potential applications for future research. In addition, certain terrestrial rocks will also be analyzed and discussed to help provide a direct comparison to the extraterrestrial meteorites used. This will provide the

audience with a more complete understanding of geologic processes, from both a terrestrial and extraterrestrial perspective. (*Faculty sponsor: David Gibson*)

1:30 - 1:50

Effects of Effluent on Developing Zebrafish Embryos

Marissa Kinney, Alfred Odong, and Brittney Longmore

This experiment tested the effects of effluent on developing Zebrafish embryos. Sewage water can be treated at wastewater treatment plants and released into rivers. An experiment was designed using treated sewage water from Farmington, ME and zebrafish embryos with the expectation that developmental and/or reproductive effects would transpire. The results will give insight into the quality of treated water returned to our ecosystem. It will also explore its possible effects on fish populations within the river, specifically any defects potentially caused by complications in the endocrine system during embryonic development. (*Faculty sponsor: Jean Doty*)

1:50 - 2:10

Tail Length Effects on Reproductive Success of Mycobacteriophages

Madison Davick, Carter Shaw, and Kelli Trenoweth

This reproduction experiment was designed to identify the relationship between the tape-measure protein length and its specific Mycobacteriophage's (also known as Phage) ability to infect a given host for means of reproduction. When a phage has a long tape-measure protein, they will have a long tail attached to their capsid. We hypothesize longer phage tail length leads to less successful infection when compared to shorter-tailed phage. If the ideal tail-length is determined for successful attachment and infection upon every reproduction attempt, medical researchers will be able to further put these viruses to use in attempts to one day replace antibiotics. (*Faculty sponsor: Jean Doty*)

2:10 - 2:30

The Effects of Over the Counter Pain Relief Medications on Embryonic Development During Pregnancy

Chase Malloy, Connor Marland, and Abdul Azeez Kalayaf Manahe

This project is designed to determine if over-the-counter pain medication negatively affects embryonic development in pregnant women. The study will test various common over-the-counter drugs and identify which are the safest during embryonic development, including what, if any dosages are harmful. Although there has been research to link certain pain relievers to birth defects, little research has been done using dosage as the independent variable. By using zebrafish embryos to simulate human development, this project may lead to a better understanding of how certain doses of over-the-counter pain relief medications can affect embryonic development. (*Faculty sponsor: Jean Doty*)

2:30 - 2:40

Break

2:40 - 3:00

The Isolation of Bacteriophage from Wastewater Effluent

Eli Michaud, Bailey Shevenell, and Courtney Frost

Pathogenic Escherichia coli and Enterobacter are both found in wastewater and require precise treatment processes to prevent an outbreak of disease or infection. In addition to pathogens, high concentrations of some species in the genera Mycobacterium and Gordonia can lead to excessive foaming, producing challenges in wastewater filtering. As more extensive research on bacteriophages is conducted, the benefits of their use

to kill pathogens and reduce foam production has been indicated. Exploring the presence of bacteriophage in wastewater will further aid in the understanding of how these abundant organisms can improve the process of wastewater treatment. (*Faculty sponsor: Jean Doty*)

3:00 - 3:20

The Effects of Alcohol Exposure on Zebrafish (*Danio rerio*) Embryos

Andrea Stemm and Kyla Sturtevant

This project is designed to test if zebrafish (*Danio rerio*) embryos will develop anatomical abnormalities as a result of alcohol exposure, and if they do, which abnormalities are most abundant. Exposing a human fetus in utero to alcohol is known to cause developmental abnormalities, such as Fetal Alcohol Syndrome, organ defects (e.g. change in shape, function, or amount), and even fetal demise. This experiment will provide important evidence regarding the impact of alcohol exposure in the zebrafish embryo that can be used to further our understanding about the impacts of alcohol exposure on the human fetus. (*Faculty sponsor: Jean Doty*)

3:20 - 3:40

A Study on Gene Transfer between Bacteria and Genetically Modified Soybeans

Sarah Stanley, Chelsey Frank, and Julia Dudley

An estimated 70% of all processed foods in the U.S. contain at least one genetically modified ingredient—typically a product of soy plants. Antibiotic resistance genes are used as marker genes in GMOs. The use of these marker genes has been a topic of concern regarding the potential increase in the rate of antibiotic resistance in human pathogens. This study looked to evaluate the ability of naturally occurring bacteria on the genetically modified edamame to pick up the antibiotic resistance gene Kanamycin, thus predicting if other organisms are able to inherit the gene upon consumption. (*Faculty sponsor: Jean Doty*)

3:40 - 4:00

Effects of Antibiotics on *Danio rerio* Embryonic Development

Tamera True, Sitey Muktar, Alexis Poulin-Gittersberger, and Kaylyn Walker

Historically, antibiotics have been over-prescribed, even to patients experiencing viral infections. In some countries, antibiotics can be purchased over the counter by women who are pregnant or who may become pregnant without any knowledge of what may happen to the unborn fetus. The purpose of this study is to test the exposure of antibiotics on developing *Danio rerio* embryos and the changes in their morphology due to these drugs. These results are able to simulate which antibiotics effect fetal development and how—two important factors planning mothers who are prescribed antibiotics should consider. (*Faculty sponsor: Jean Doty*)

4:00 - 4:20

Gene Retention in *E. coli*

Kaleb Fletcher

The dramatic increase in antibiotic use through medicine and agriculture has produced highly antibiotic resistant *Escherichia coli* (*E. coli*). This bacterium is commonly found in beef, and is subsequently passed to humans through the consumption of undercooked meat. This study aims to explore the use of bacteriophage as an alternative treatment for ABR *E. coli* by exposing ABR strains to various *E. coli* T phages. The use of phage to treat resistant infections, known as phage therapy, may help combat these ABR infections and save lives. (*Faculty sponsor: Jean Doty*)

Venue 4, Roberts 101

History, Geography

9:00 - 9:20

Toking in the Talkies

Zachary J. Nadeau

On June 14, 1938, Albany, New York banned the anti-marijuana film *Assassin of Youth*, from local theatres. This was not the first time the New York State Motion Picture Division or the New York Board of Regents had denied licensure to a film that aimed to educate the public about the adverse effects of the newly criminalized drug "marihuana." Why, one might ask, would the censorship boards, charged with protecting public morals, refuse to allow the screening of anti-marijuana films which were created by those who espoused the same goal? This presentation explores the relationship between both film producers and censorship boards in the 1930's as well as the opposing perceptions of marijuana that resulted in this "do-gooder vs. do-gooder" conflict. *(Faculty sponsor: Allison Hepler)*

9:20 - 9:40

Myth of the Female Orgasm: Sex as Male Recreation in Eighteenth-Century England

Andrew Varney

Before the 18th-century it was common knowledge that the male and female genitals were the same. Due to this, common medical practice was that both parties needed to orgasm for procreation. However with the medical "discovery" of the clitoris in the 17th-century, there was a change in gender ideology. Using 18th-century English sources such as pornography, medical records, and literature, I argue that there was a change in what was considered "acceptable sexual behavior," which turned sex into male recreation at the expense of female passion. *(Faculty sponsor: Allison Hepler)*

9:40 - 10:00

Partners of Pirates: The Social and Sexual Relationships Behind English Piracy during the Golden Age, 1650-1730

Madison Uliano

Blackbeard had 14 wives. Anne Bonnie's lover, John Rackam, was so jealous of Mary Read that he openly threatened to slit her throat. These are just a few examples of the complex sexual relationships taken on by pirates. While we think of Pirates as single, swashbuckling men, the truth is far richer and more varied. Pirates took part in and maintained marriages and other sexual relationships, and these relationships were key parts of their society. I will explore these relationships and the culture that was built upon them. *(Faculty sponsor: Allison Hepler)*

10:00 - 10:20

Changing Tides, Changing Times: The Difference from One Wave of Skinheads to the Next

Andrew Devine

Undoubtedly, when most people imagine a skinhead, they think of a racist. Or beyond that, when most people imagine a racist, they think of a skinhead. This wasn't always the case. How did this come to be, considering the original skinheads of the late 1960s were heavily influenced by their interest in ska, reggae, dance halls, and other aspects of Caribbean/Jamaican culture? This presentation examines the evolution of this subculture from its origins to its current iteration. *(Faculty sponsor: Christopher O'Brien)*

10:20 - 10:30

Break

10:30 - 10:50

How Cattle Ranching Affects the Water Quality in the Amazon Basin

Megan Burke

As the population of the Earth continues to rise the amount of cattle raised for consumption also rises. This research focuses on how increased cattle ranching in the Amazon Rainforest might affect the water quality in the basin. The study will examine in particular how deforestation from cattle ranching and cattle ranching may impact water quality. *(Faculty sponsor: Brad Dearden)*

10:50 - 11:10

Our Place in Nature: How Perceptions of Nature Shape Views of Climate Change

Cheyenne VanDooren

This research is focused on understanding if the perceptions of one's place in nature, in this case young adult Mainers, can affect their standing on climate change policies. Individuals from Maine were either interviewed or completed a survey, wherein participants viewed photographs of "nature" as a visual data form to evoke their perceptions. The recognition of diverse perceptions allows for understanding the complex role of the human relationship with "nature," ultimately allowing for a better understanding of people's place in the natural world. *(Faculty sponsor: Brad Dearden)*

11:10 - 11:30

What Could Have Been and What Once Was: Three Dam Sites in New England

Brett Elliott

This study will comprehensively analyze the once-proposed Dickey-Lincoln Dam on the St. John River in Northern Maine, the once-proposed Victory Dam on the Moose River in Northeastern Vermont, and the implemented Long Falls Dam and Flagstaff Lake in Northwestern Maine. Each hydroelectric dam site will be investigated and compared in terms of human settlement and ecological impacts. Particular attention will be given to the impoundment of each dam site, its footprint and the impacts of inundation. Public opinion will be reviewed for each dam to gauge its favorability and report on reasoning for dam completion or cancellation. *(Faculty sponsor: Brad Dearden)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 1:30

Environmental Impacts of Winter Recreation in the State of Maine

Emily Carman

Recreation activities such as skiing and snowmobiling are abundant in the state of Maine. Ski resorts in particular bring in people from all over the country which is great for both local and state economies, but it also increases environmental pressures associated with the industry. Given documentation of this phenomenon by past research done nationally, it is likely there are similar impacts affecting Maine's environments in terms of wildlife, water, and soils. Through interviews with professionals in associated fields, this research examines how winter recreation activities are impacting Maine's environments and what management practices are being implemented to reduce these impacts. *(Faculty sponsor: Brad Dearden)*

1:30 - 1:50

The Pine Tree State Powered by the Sun

Eric Salvesen

Global climate change is a prominent issue and countries are beginning to take action to diminish pollution levels by switching to renewable energy. In Maine, the use of solar power has been expanding. This paper will examine solar energy in Maine and how it might be expanded to power the state. Using site suitability characteristics and geographic information systems (GIS), the most ideal sites are determined, and analyzed for their potential as large-scale solar operations to provide renewable energy for Maine. *(Faculty sponsor: Brad Dearden)*

1:50 - 2:10

Human-Induced Habitat Fragmentation Focusing on Maine

Daniel Capone

Recent human activity has led to a number of human-related environmental impacts due to expansion of development and population into rural areas. One direct impact is fragmentation of habitat which can occur from expansion of settlement and new infrastructure, with particular consequences to forested ecosystems. Species that inhabit such environments are likewise subject to these development processes and forest fragmentation. This research examines this fragmentation process with respect to its causes and outcomes for the case of forested environments in Maine. *(Faculty sponsor: Brad Dearden)*

2:10 - 2:30

Nationalism vs. Globalism

Chase Damon

The spread of nationalism has had a profound impact on global politics. There is more division in the United States now with the recent administration and the shift away from globalism is certainly apparent. It is important to explore all possible explanations for the social change happening in the United States. The role of news and media in this movement could have a profound impact on the way people view these ideologies. This research delves into potential biases in the media and how that may affect nationalist tendencies. *(Faculty sponsor: Brad Dearden)*

2:30 - 2:40

Break

2:40 - 3:00

Farmington, Maine: Stories and History Told by Its People

Layne Nason

The town of Farmington has seen extensive change over the past seventy-five years. From changes in businesses, culture, norms, and values, the people of Farmington have a great story to tell. This project aims to look at a number of Farmingtonians, who have wonderful stories to share, from every decade going back to the 1940s. Through their anecdotes, memories, and ideas, an evolution of the town of Farmington can be observed. It details the businesses, activities, notable events, unique experiences, and stories of youth going back to the days of the Second World War. *(Faculty sponsor: Brad Dearden)*

3:00 - 3:20

The Effects Woody Biomass Has on Forest Regeneration

Ethan Pelletier

Climate change has humanity rethinking the way in which they acquire fuel for heat and electricity. This research will focus on one such fuel source that has been regaining popularity in Maine for the past few decades, woody bio fuels. However, even though this fuel source is seen as renewable, is it in fact a long term sustainable solution? The way in which trees are harvested has been a concern for some time. This study will explore the implications of such practices being performed to harvest this energy source and will conclude whether this is a practical resource for future generations. *(Faculty sponsor: Brad Dearden)*

Venue 5, CR 123, Olsen Student Center

Humanities, Health, Social Sciences, Business

9:00 - 9:40

Name That Religion

Duncan Rogers, Moriah Pinckney, Karli Rogers, Victoria Schmid, Sierra Tarbox, Amber Mckenzie, Owen Lattin, Riley Davenport, Abbigayl Czajkowski, Jessica Cloutier, Katherine Franke, Jennifer Hancock, Heather Kinee, and Andrew Wilcox

The students from Peter Hardy's First Year Seminar - The Nature of Spirituality - will share their research into some of the most influential spiritual teachers throughout history in an interactive presentation which will test the audience's knowledge of world religions. *(Faculty sponsor: Peter Hardy)*

9:40 - 10:20

Contemporary Small Presses and DIY Bookbinding

Tegan Bradley, Andrea Swiedom, Elizabeth Kane, Sylvia Schulze, Heather Leet, Alexandra Umstadt, Gail Bello, Alexandra Dupuis, Annie Moloney, Michaela Zelig, and Zoe Stonetree

Our presentation will take two parts: first, a few students will speak about contemporary small- and micropress publishing, situating it briefly within a larger history of books, bookbinding, and book arts. Then, students will demonstrate the construction of a three-hole pamphlet-stitched book, and lead small groups of attendees in binding their own book. We will provide materials. We will also have bookbinding books and sample student-made work from the semester on hand. *(Faculty sponsor: Eireann Lorsung)*

10:20 - 10:30

Break

10:30 - 10:50

What is the Value of an Internship?

Nicole Foote, Jeffrey Lamar, Daniel Abbatello, and Eli Simmons

After having participated in the Partnership of Civic Advancement (PCA) program for 2 semesters, Daniel Abbatello will now enlighten others on just how important and beneficial internships can be. Daniel and other interns/practicum students who work along-side him at the United Way Tri-Valley Area will share what they have learned in their short time together. Also, a guest appearance from Lisa Laflin director of the UWTVA will be there to give the perspective of the business and how these interns have helped them grow. *(Faculty sponsor: Frank Engert)*

10:50 - 11:10

Small Town to Small Town: Transitions and Experiences in Education

Kimberly Day

In what ways do small towns in Maine differ from small towns in Connecticut? Are there demographic intersections? Demographic distinctions? This presentation is a semi-autobiographical account of my experience as a native of a small town in Connecticut to a practicum student and substitute teacher here in Franklin County. My inquiry focuses on the impact of that transitional experience on my developing identity as an educator and my growing understanding of the field of education. *(Faculty sponsor: Christopher Strople)*

11:10 - 11:30

The State of Infant Mortality in Maine

Layne Nason

In recent years, in the state of Maine, the rate of infant mortality has risen significantly. As infant mortality is a reflection of the health of a state, this increase in Maine is quite troubling for expecting mothers and infants. For this project, GIS software will be used to present data related to infant mortality, such as poverty rates, health care coverage of infants and mothers, and Maine's declining Medicaid rates. Data has been collected from the Maine Center for Disease Control and Prevention (CDC). *(Faculty sponsors: Kelly Bentley, Luke Kellett)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 2:10

Immigrant Digital Stories

David Mallow, Kate Starkie, Grant Stupca, Damaris MacGregor, Bradley Howes, Jordan Brotherton, Cameron Carpenter, Samuel Bonfatti, Stephanie Dwinal, and Thomas Young

Why do people migrate? What risks and rewards do immigrants face? What are the challenges and benefits for communities of reception? How does migration transform individuals, families, and towns? What can we learn about the living history of migration by collecting oral histories? Join the students of INS 101H as they share 3-5 minute digital stories they created based on interviews conducted with community members. Whether a love story, a reflection on language acquisition or a narrative about family traditions, these digital stories give a human voice to immigration. *(Faculty sponsor: Olivia Donaldson)*

2:10 - 2:30

New Medievalism: How the Past and Present Collide

Curtis Cole

From the tragedy in Charlottesville to Hollywood blockbusters like Guy Ritchie's recent Arthurian epic, medieval iconography and ideas remain alive and well in the modern world; whether it is Neo-Confederates' misappropriation of Chivalric knighthood or a political demagogue hearkening back to a medieval golden age, medievalism permeates our culture. This presentation will focus on examining a few key trends in what is generally known as "New Medievalism." Using both film and texts as examples, I will explain how medievalism escapes from the academy and becomes reified in the hands of both the media and political extremists. *(Faculty sponsor: Michael Johnson)*

2:30 - 2:40

Break

2:40 - 3:00

Black Mirror: The Disruption of Genre

Hannah Zimmerman

Black Mirror, a television show created by Charlie Brooker, is a show that involves many different genres, including science fiction, romance, and horror. While this is increasingly common throughout modern television, *Black Mirror* is unique in the way that it disrupts genre and twists it into something that the audience does not expect. *Black Mirror* does this mainly through its use of technology and how technology impacts the characters in the show. This presentation will explore how genre gets twisted and disrupted in *Black Mirror* by examining the episode "White Christmas." (*Faculty sponsor: Michael Johnson*)

3:00 - 3:20

The Representation of Black and White Women in Slave Narratives and Neo-Slave Narratives

Prescilia Ganache

My paper examines the representation of black and white women who lived in the South of America during slavery times in literature. I compare slave narratives and neo-slave narratives, focusing on black and white women as elements of the community and the role they played under slavery. I am interested in the role of their bodies and their portrayal in literature. (*Faculty sponsor: Michael Johnson*)

3:20 - 3:40

Commodified and Exploited: Race and Profit in College Football and Men's Basketball

Patrick Poirier

In today's sporting world, there are two absolutes. There will always be athletes willing to make sacrifices in order to pursue an athletic career, especially if it promises to be lucrative, and there will always be individuals and organizations willing to exploit this. What are the ramifications of this in Division 1 athletics, especially with respect to football and men's basketball, two sports whose athletes are predominately African-American? Looking at NCAA rules, tracking economic trends, and drawing upon the words of players, my research will address the question: If amateur athletes are exploited, is there a racial element to this exploitation? (*Faculty sponsor: Gaelyn Aguilar*)

3:40 - 4:00

What's a Witch Gonna Do?: An Ethnography on Witchcraft in Western Maine

Bobbi Morneault

It's no secret that the media and popular culture shape the way we see the world. All of us have our preconceived notions about cultures, identities, and practices that are foreign to us. The symbol of the witch, for example, has been characterized for centuries as a wicked woman, someone fantastical, someone devilish. Witchcraft (often incorrectly interchanged with Pagan and Wiccan) has a legacy preceding it, often leading to misunderstanding, fear, and (in extreme cases) witch hunts and burnings. This ethnography aims to record and present witchcraft as it exists on the ground among college-aged students in rural Western Maine. (*Faculty sponsor: Gaelyn Aguilar*)

4:00 - 4:20

Easy Breezy Beautiful: Cosmetic Advertisements and Female Gender Norms

Kasi Pratt

Body modifications, such as the use of cosmetics, plays a crucial role in establishing social norms within any culture. How might trends in cosmetics reflect changes in these norms, especially with respect to gender identity in the United States? This project combines ethnographic fieldwork within various beauty subcultures and historical analysis of print-based advertising, with a focus on the relationship between messages produced and their effect on female gender norms. *(Faculty sponsor: Gaelyn Aguilar)*

4:20 - 4:40

Changing Culture, Changing Health

Chantal Diamond

The World Health Organization defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". How does this definition square with being a refugee, a status that can often adversely affect one's experience with health and wellness. This research project looks at cultural conceptions of health and wellness among refugees in Maine, with an emphasis on tracking how these conceptions have shifted from country of origin to country of resettlement. Additionally this project looks at some of the support systems that lend a helping hand in this transition. *(Faculty sponsor: Gaelyn Aguilar)*

Venue 6, The Landing, Olsen Student Center

Humanities

9:00 - 9:40

Reading by Winners of the 2018 "On Our Minds" Writing Contest

Winners will be selected in April.

The three UMF student winners of the "On Our Minds" Writing Contest will read their winning entries. This year's topic is "Live. Travel. Adventure." The contest is offered through Mantor Library and sponsored by the Shiretown Bookers, Community friends of the library. *(Faculty sponsor: Bryce Cundick)*

9:40 - 10:20

Coming of Age: An Exploration

Cameron Morin, Billie Rose Newby, Emma Payson, Tyler Stinson, Fern Calkins, Kaitlyn Mitchell, Caitlyn Davidson, Alyssa Leonard, Courtney Ducharme, Mikhayla Flores, and Kyra Zabel

Students in Honors 101: Coming of Age in America will present video, dance and written projects responding to texts that highlight different aspects of Coming of Age in America. *(Faculty sponsor: Shana Youngdahl)*

10:20 - 10:30

Break

10:30 - 11:30

Reading by Students in English 310, Advanced Fiction

Elizabeth Kane, Annie Moloney, Belanna Morales, Nova Jarvis, Joshua Heath, Carrie Close, Gail Bello, Alexandra Dupuis, Julie Guerra, and Alison Turtlott

Current students in Advanced Fiction will read excerpts from new work written this semester. (Faculty sponsor: Patricia O'Donnell)

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 1:30

Internship at Alice James Books

Julie Guerra

This presentation will be about what I have learned as an intern at the publishing house Alice James Books. During the presentation, I will give an overview of the publishing house itself, the duties that are required of the interns, as well as the way that this internship relates to my majors and potential career interests. (Faculty sponsor: Patricia O'Donnell)

1:30 - 3:30

English Capstone Projects

Ciara Keene, Justine Walp, Anthony Lewis, Alison Turtlott, Jessica Casey, and Rosemary Penny

Senior English majors in The Capstone Seminar will present their semester-long individual research projects on topics ranging from Victorian pornography to the life and career of Bob Dylan. (Faculty sponsor: Kristen Case)

Venue 7, Ricker 217

Humanities, Social Sciences, Psychology

9:00 - 9:20

Inverting the Sexes in Will Self's *Cock and Bull* (1992)

Clementine Leroy

In the 20th century, biologists, sociologists and anthropologists examined the difference between sex and gender. How much of our identity is biological versus cultural? Self's *Cock and Bull* reflects upon the fact that your sex is given by nature, but the way you behave and define yourself is cultural. He blurs the lines that most sharply contrast the sexes by giving a penis to a woman and a vagina to a man. When this happens, there is a polarizing change in each character's personality. This highlights the way society often forces people to view themselves according to their sexual organs. (Faculty sponsor: Olivia Donaldson)

9:20 - 9:40

Somali Oral History Collective

Calista Hodges and Christa Grohoski

Christa Grohoski and Calista Hodges created an oral history project for their COPLACDigital course called "Voices of Migration: An Oral History Collective," which was funded by a Mellon Foundation grant. They focused on Somali immigrants from the Lewiston/Auburn area. In the oral history each immigrant was asked about the community that they are now a part of, their life experiences, and their future hope for the community and their family. Christa and Calista created a website that showcases the oral histories and answered questions about why people migrate. *(Faculty sponsor: Olivia Donaldson)*

9:40 - 10:00

Democracy and Jury Nullification; Democracy and Online Voting

Hunter Michaud

We will discuss Jury Nullification, the process whereby a jury returns a not-guilty verdict not because it finds a defendant not guilty according to the law, but because it rejects a particular law, or its application. *(Faculty sponsor: Matthew Freytag)*

10:00 - 10:20

Democracy and Online Voting

Spencer Teachout

We will discuss Online Voting, a form of direct, non-representative democracy now made possible by technological developments. *(Faculty sponsor: Matthew Freytag)*

10:20 - 10:30

Break

10:30 - 10:50

Shakespeare's *The Tempest*; is it Proto Sci-Fi?

Abby Waceken

What is proto sci-fi, and how does it relate to Shakespeare? This presentation will consist of an essay reading and will address the following questions: How can somebody view *The Tempest* as a novel that paved the path for modern-day science fiction? What proto sci-fi archetypes can be seen in the main characters? Using scholarly articles by Eric Rabkin, Charles Frey, David Ketterer, and Gary K. Wolfe, this presentation will showcase a new and interesting way of looking at one of Shakespeare's most famous plays. *(Faculty sponsor: Daniel Gunn)*

10:50 - 11:10

Is STEAM a Viable Option for Maine Public High Schools?

Allison Bernier

STEAM is an initiative that looks to combine the STEM fields and the Arts. This project investigates if STEAM would be a viable option for Maine public high schools. There is a focus on the opinion of educators across Western Maine on the topic of STEAM, and more broadly technology, and cross curricular integration. This project is through the Maine Public Policy Scholarship. *(Faculty sponsor: James Melcher)*

11:10 - 11:30

LBJ Fellowship: Hungry to Help!

Randy Larue

This will be an interactive presentation by the LBJ Fellows, a Johnson Scholarship program, about their on-campus and community food insecurity projects this semester. It will explore our work with the Sustainability Campus Coalition (SCC), UMF AmeriCorps, Seniors Plus at the Farmington Community Center and The United Way of the Tri-Valley Area. As well as demonstrate the Fellows development of key non-cognitive skills such as leadership, teamwork, communication and professionalism. *(Faculty sponsor: Lawrence Ronco)*

12:20 - 1:10

Lunch

"Not Quite a Free Lunch" (South Dining Hall)

1:10 - 5:00

Research Methods in Psychology: Oral Presentations by PSY 400 Students

Brook James, Leah Ridley, Alexis Poland, Kyla Antonioli, Krystal Randlett, Oaklin Blaisdell, Haley West, Raven Walczak, Chloe Reichenbach, Abbie Hartford, Jordan Lecours, Katherine Connors, Flynn Chiappetta, Liam Erickson, and Charity Lafrance

Fifteen Psychology and Business Psychology students will present their independent research projects in individual oral presentations. The students' projects cover topics including: accuracy of gifted education assessment; the role of childhood pet ownership on prosociality; ageism in the workplace; body modification and assumptions of criminality; social conformity in shoe removal; cell phone usage and the impact on face-to-face interaction; perceptions of polyamory; sexual/romantic identity and attachment style; and other topics covering social, personality, and cognitive psychology. *(Faculty sponsor: Karol Maybury)*

Venue 8, Art Gallery

Senior Artist Talks

1:10 - 1:30

Mediated Memory and Identity

Elliott Eno

Will be presenting a series of short videos that explore individual memory, collective memory and identity in the digital age of instant information and entertainment. The work examines contemporary and historical structures that inform and construct our cultural memory, as well the way individuals exist within those structures. There is a particular focus on the construct of identity. The work often takes a very critical approach to the tyrannical culture we are force fed daily, a culture whose aim is that of identity consumption. The presentation will be a short artist talk with a Q&A. *(Faculty sponsor: Katrazyna Randall)*

1:30 - 2:30

Senior Artist Talks: Feint

Eric Berry, Samuel Burnell, Nicholas Cole, Elliott Eno, Cameron Morrell, and Olivia Vanner

Senior art students in the Division of the Arts are exhibiting the culmination of their capstone research in their group show titled Feint. The exhibition is a varied array of works, exploring labor through rural objects, memory's relationship with culture, uncanny childhood nostalgia, social alienation rooted in the spectacle, the clarity of incoherence and the disintegration of nature through media. The seniors will discuss the processes,

artists and ideas that have shaped and informed their work on display in the UMF Art Gallery and Emery Community Arts Center. *(Faculty sponsor: Katrazyna Randall)*

Venue 9, Spenciner Curriculum Materials Center

Education, Special Education

10:00 am - 3:00 pm open house with a formal presentation at 1:10 - 2:10

Assistive Technology at UMF

Taylor Marcotte, Jackie Leafer, Trevor Lee Hall, Eliza Hopkins, Pearl Wilson, and Cassidy Frost

The goal of assistive technology (AT) is to establish, maintain, increase, or improve a daily life function. AT Student Specialists aid students, faculty, and members of the community to research, demonstrate, and implement AT in school and community settings. We will provide an overview of best practice when using AT as well as hands-on opportunities to explore a range of technology available at the SCMC, including a new virtual presence robot and 3D printer. Tours and demonstrations available throughout the day. A formal presentation will be held in the Lobby of the Education Center from 1:10- 2:10pm. *(Faculty sponsor: Kevin Good)*

9:00 - 11:00, 1:00 - 3:00 Open House

Learn, Explore, and Discover at Spenciner Curriculum Materials Center!

Kristine Sarasin, Sable Sands, Darci Goslin, Ashley Cross, Brianna Fowles, Megan Cookson, , Abbi Libby, Elizabeth Nelson, Kristen Hill, Haley Felkel, Bethany Abram, Ripley Biggs, Taylor Bishop, Sierra Tarbox, Olivia White, Emma Petersson, Alyssa Morin, Crystal Macomber, Erika Whitman, Rebecca Collins, Gwen Baker, Michelle Birmingham, Alexandra Veilleux, Jessica Brink, Bonnie-Jane Aiken, and Brooke Sevigny

Have you ever wondered where teachers get their fun and creative resources? Spenciner Curriculum Materials Center provides materials and educational experiences for children and their families, teachers, education professionals, and individuals with disabilities. The collection includes children's literature, textbooks, teaching aids, math and science manipulatives, educational games, toys, technology, assistive technology, and other helpful resources. Students from Early Childhood and Elementary Education will be on-hand to lead tours of the center and to provide interactive demonstrations. Join us and get your hands on some of the "tools of teaching" and learn about the many ways children learn, explore, and discover! *(Faculty sponsors: Leigh Ann Fish, Patti Bailie, Patricia H. Williams, Erika Neal)*

Venue 10, Education Center Lobby

Education, Special Education

9:00 - 10:00

Exploring Middle Grades and Young Adult Literature with a Vision of Our Future Students

Emma Martineau, Sophia Manning, Kayleigh Knox, Kaitlyn Kinney, Lakota Monzo, Torrie Nightingale, Andrew Price, Michael Pingree, Krystin Perreault, Thia King, Alicia Hilton, Abby Dalzell, Delaney Coyne, Rachael Chavarie, Marissa Chamberlain, Chelsea Ballard, Brianna Dugal, Alyssa Higbie, Angel Greer, Emily Hartford, Eliza Halbig, and Kyleigh Roberts

How might we help our future students engage in literacy practices in meaningful ways? How will we know which books to recommend or choose for instruction? The 30 Text Challenge was the means to develop our knowledge of children's literature for the intermediate and middle school audience in order to explore these questions. Many of these were shared texts, texts recommended by our fifth grade Book Buddies at Cascade Brook Elementary School, or texts selected based on honors and awards, blog posts, or book lists. With each of the texts, we explored ways in which learning could be expanded or deepened while considering alignment to the English Language Arts Standards. In our session you will learn about the texts we read, structures for engagement, and extension activities we explored on our journey of the 30 Text Challenge. *(Faculty sponsor: Kathryn Will-Dubyak)*

2:10 - 3:10

K-3 Literacy Instruction Using Recent Award Winning Children's Literature with Infusion of Technology to Enhance and Transform Experiences

Megan Russell, Ashley Savage, Kirstin Taylor, Tessa Walsh, Callie Bates, Molly Maurer, Emma Crovo, Keilly Lynch, Devon Hall, Lily Hood, and Spencer Wodatch

Using recently published award-winning children's literature as the foundation to engage young learners in developing their literacy practices, pre-service teachers explored the ways in which the texts could be used for various purposes and outcomes. The plans were then examined with consideration for how the purposeful infusion of technology could enhance and transform instructional and learning experiences. *(Faculty sponsors: Kathryn Will-Dubyak, Meredith Swallow)*

Venue 11, Nordica Auditorium

Sound Installation

The installation will run from 9:00 - 1:00 on Symposium day as well as the evening before. Shane Watwers will be available for discussion on Tuesday evening and from 10:00 until 12:00 on Symposium Day

A Sensorial Experience

Shane Waters

The sensorial experience of our relationship with sound and music has been increasingly more popular in research due to heightened or relaxed emotions and physiological responses to sound. This project intends to manipulate Pitch (Frequency), Amplitude (Intensity), and Timbre (Waveform) to explore individual experiences through an interactive sound installation. *(Faculty sponsor: Gustavo Aguilar)*

Venue 12, North Dining Hall

Posters, Interactive Media

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. Presenters should come to North dining hall to put up their posters between 8:00 and 8:30 am. They must remove their posters by 3:30 pm.

Interactive media station

ELL Students with Disabilities in American Classrooms

Bradley Howes

This presentation will involve an interview with Prof. Kate MacLeod on English Language Learners with Disabilities in American Classrooms through a recorded Keynote Presentation. This Presentation will play automatically once started and will focus primarily on ELL students with Disabilities in the Classroom setting and community as a whole. *(Faculty sponsor: S. Olivia Donaldson)*

Poster # 1

Microbrew Culture in the State of Maine: Passing Trend or Catalyst for Revitalized Civic Engagement?

Jenna Sanders

The State of Maine has seen incredible growth in the microbrew industry in recent years. Will this economic trend continue and will the industry be sustainable moving forward? Is the rise of microbrew culture due solely to potential economic gains and incentives, or has the industry achieved success because it has been able to create a community based environment that encourages face-to-face contact and interaction? To answer these questions the student has conducted literary analysis and interviews with breweries, restaurateurs, and bar owners. It is hoped this project will provide greater insight to the evolving microbrew industry in Maine. *(Faculty sponsor: George Miller)*

Poster # 2

Petrography, Age, and Provenance of Mafic Dikes, western Maine

Daniel Mason and Chase Rerrick

Basaltic (*sensu lato*) dikes intrude the high-grade metamorphic rocks, the Songo granodiorite, the Sebago granite and the Sebago Granite-Migmatite domain of western Maine. Collectively they constitute a major dike swarm, although it is unclear if they comprise one or multiple pulses of dike emplacement. Similarly, their provenance is also problematic as they could be related to the CAMP magmatism, assumed to be ~ 200Ma and tholeiitic in composition, or associated with the Coastal New England (CNE) suite, an older (~ 230Ma) mantle plume source of alkaline affinity. This study presents further field, petrographic and geochemical data for dikes in Maine. *(Faculty sponsor: David Gibson)*

Poster # 3

A New Information Systematic for Maine's Plutonic Rocks

Layne Nason

The main focus of this research is to examine a way in which the new information on Maine's plutonic rocks can be synthesized into one location, by use of ArcGIS Online. By having a standard map file of the state of Maine for the Geology departments across the state to edit and utilize, could be a breakthrough way in which

students and faculty could enrich their research. Parameters such as size, geographical and geological location, age (if available), and any petrographic and geochemical information on Maine's plutonic rocks could be integrated into an editable application. *(Faculty sponsor: David Gibson)*

Poster # 4

The Origin of Garnets from the North Jay and Cape Cod Hill Plutons, West-Central Maine

Brianna Leonard

The North Jay and Cape Cod Hill plutons (NJ and CCH respectively) are two-mica, peraluminous granite intrusions that outcrop in west central Maine. They are similar by being medium-grained, light grey granites with biotite/muscovite, microcline, plagioclase and quartz. In addition, they contain minor amounts of garnet, which occurs sporadically throughout these granites but also within xenoliths of schistose material (surmicaceous enclaves) and small gt/bt knots. Therefore the question addressed in this presentation is whether the garnets are magmatic or inherited xenocrysts? *(Faculty sponsor: David Gibson)*

Poster # 5

Sea Level Rise in Maine: Impacts and Avenues for Adaptation

Andre Leblanc, Kaeley Stewart, Jacob Chabot, and Danica Lamontagne

This poster will examine the current challenges that Maine faces in regards to projected sea level rise in the Gulf of Maine. This poster will examine how rising sea level, including tidal and storm surges may affect coastal areas of the state. The research will also profile adaptive measures that coastal communities are taking to address potential threats to ecosystems, infrastructure and local economies. *(Faculty sponsor: Luke Kellett)*

Poster # 6

Current and Future Impacts of Climate Change on Maine's Lobster Industry

Henry Goggins, Brianna Mcgrath, Samantha Bruce, and Alexis Poland

The lobster industry in Maine has been a vital part of Maine for decades, both culturally and economically. Already observed changes in water temperature, acidity, salinity in the Gulf of Maine have provided both record yields, but adverse impacts to the lobster industry. The potential movement of lobster to colder waters offshore, in addition to shell disease and other threats may make the lobster industry more expensive and may undermine the economic viability of lobster dependent communities. In this poster we will look at current data, and future projections of climate change on Maine's lobster industry. *(Faculty sponsor: Luke Kellett)*

Poster # 7

Impacts of Climate Change on Health, Disease and Safety in the State of Maine

Mana Abdi, Ross Momaney, Meghan Foye, and Zachary Cline

This poster examines the current and future impacts of a changing climate on human health and disease in the state of Maine. The research profiles how a warming climate and changing seasons is offering new challenges for health professionals. In particular, heat waves and Lyme disease have been identified as concerns for local communities. In addition, this poster will briefly consider how climate change may threaten community safety by exposing populations to increases social and environmental risks (i.e. flooding). *(Faculty sponsor: Luke Kellett)*

Poster # 8

Impacts of Climate Change on Maine Fisheries

David Tschirch, Linda Welch, Chase Rerrick, Daniel Capone, and Sean Brock

Fishing, both coastal and inland, have provided an essential role in the economy and culture of Maine. Currently, saltwater and freshwater state fisheries are being threatened by a range of impacts from climate change. Warming temperatures and changing chemistry of freshwater lakes and streams, as well as in the Gulf of Maine, are allowing for invasive species and foreign pathogens to affect native fish populations. In this poster we examine current impacts and potential pathways to mitigate and adapt to changes in Maine fisheries. *(Faculty sponsor: Luke Kellett)*

Poster # 9

Meltdown: Climate Change and the Future of Winter Recreation in Maine

Miranda Mitton, Zoe Willis, Lillian Russell, and Kelsey Brann

This poster explores the impacts of climate change on winter recreation in Maine. Since winter is closely tied to Maine's state identity, history and economy, a changing winter season is especially important. Winter recreation, including ice fishing, snowmobiling and skiing, and associated economic industries will be challenged by warming temperatures and shorter, likely wetter winters in the future. Additionally, since winter tourism is a cornerstone of Maine's economy, understanding the impacts as well as successful avenues for mitigation and adaptation is required for the state's prosperous future in a new era of climate change. *(Faculty sponsor: Luke Kellett)*

Poster # 10

Progress and Pitfalls for a Renewable Energy Future in Maine

Timothy Maciel, Andrew Devine, Alexander Sicard, and Kayla Millett

In recent years, Maine has witnessed a growth in renewable energy projects. Wind and solar projects, in particular, have sprung up in many rural areas of the state and have brought benefits, but also drawbacks to local communities and landscapes. In addition, the state is considering importing renewable energy from Canada (i.e. hydropower). This research seeks to measure the progress and challenges to large-scale renewable energy development in the state and how Maine might be able to continue progress on mitigating the greenhouse gas emissions both locally and regionally. *(Faculty sponsor: Luke Kellett)*

Poster # 11

Climate Change and its Impact on Maine's Forests and Wildlife

Olivia Ridley, Connor Marland, Robert Knowles, and Adam Shorey

In this poster, we examine the current and projected changes that climate change will have on Maine's forests and wildlife. Changes in temperature, precipitation, seasonality and other factors will have a range of effects on trees, as well as animal and bird populations. Insects, tree disease and other invasive species are already being observed in Maine's forest lands. These changes offer challenges and opportunities to the wood products, tourism and outdoor recreation industries, in particular. In addition to impacts of climate change, we also explore how Maine and its residents can successfully manage as well as adapt to its changing forests. *(Faculty sponsor: Luke Kellett)*

Poster # 12

Correlation of Cleaning Habits and Quantities of Antibiotic Resistant Bacteria.

Alexis Poulin-Gittersberger

Cleaning chemicals are not antibiotics, but many of these household cleaners may contribute to the growing antibiotic resistance of bacteria we come into contact with every day. This is posing problems for future

interactions between humans and abundant, common bacteria. This study measures the amounts of both non and resistant bacteria in both regularly cleaned and dirty dormitory rooms, as well as their quantitative characteristics. These results can contribute to making the community more aware that not only can cleaning often cause more problems than we intend, but that it's okay to get dirty every once in a while. (*Faculty sponsor: Jean Doty*)

Poster # 13

Fire in Chiricahua National Monument

Kelly Toomey

This poster is a resource for the Chiricahua National Monument Visitor Center in Willcox, Arizona. This poster, along with brochure and informational essay, were designed to inform the employees and visitors of the monument alike about fire history in the Chiricahua Mountains. There is a complex past of fire regimes that have altered the landscape and its native vegetation over time. This poster breaks down fire regimes, tree growth and distribution, fire chronology, and drought severity into more easily understood language to allow visitors with varied prior knowledge to learn something new about the monument they are about to explore. (*Faculty sponsor: Andrew Barton*)

Poster # 14

The Isolation and Annotation of Cluster CV Phage, *Frokostdame*

Kesuma Laizer, Andrew Wilcox, Sitey Muktar, Abigail Moreau, and Kevin Smith

Bacteriophages are useful organisms for studying evolutionary questions and in medical applications. In the first semester, a bacteriophage was isolated from a wastewater treatment facility and the phage was named *Frokostdame*. It is a Cluster CV phage, and this phage infects the bacteria *Gordinia terrae*. *Frokostdame* consists of 52,531bp and 84 genes. During the second semester the group assigned potential gene functions to the isolated phage using DNA Master. In sequencing *Frokostdame*, it is possible for the phage to be used to understand evolution and phage therapy. (*Faculty sponsor: Timothy Breton*)

Poster # 15

Annotation of Cluster B2 Mycobacteriophage *Eaglehorse's* Genome

Daniel Bernier, Fern Calkins, Nicholas Attaliades-Ryan, Kylie Beaulieu, and Nathan Violette

Bacteriophages, or phages, have small, easily manipulated genomes, making them important model organisms for genetic research and biomedical practices. The aim of this study was to analyze the genome of the phage *Eaglehorse*, which was collected and isolated at Smith College, and determine the individual gene functions. Phage *Eaglehorse* is a siphoviridae cluster B2 phage that is 67391 base pairs in size and contains 87 genes. *DNAMaster* and other programs were used to evaluate each gene. Results from these programs will provide insight on phage *Eaglehorse's* evolutionary similarities to other organisms and potential for phage therapy and future biomedical research. (*Faculty sponsor: Timothy Breton*)

Poster # 16

Expression Levels of Monoamine Oxidase (MAO) in *Danio rerio* Tissues

Alexis Poulin-Gittersberger

Neuroscience is gaining ground everyday, and with discoveries involving neurons also comes the knowledge of what chemical messengers they carry. Epinephrine, a neurotransmitter responsible for the 'fight or flight' response, is utilized by these neurons and is degraded by the enzyme Monoamine Oxidase (MAO). Due to MAO being selectively studied, this investigation can provide further knowledge on where this enzyme is located so that it may be better studied. RNA was extracted from liver, brain, and heart tissues in *Danio rerio*,

a biomedical model organism, and was used in quantitative PCR to analyze the varying expression levels of this enzyme. (*Faculty sponsor: Timothy Breton*)

Poster # 17

RNA Expression of Histamine in Zebra fish (*Danio rerio*)

Colby Stevens

Histamine is important in immune response and as a neurotransmitter in the brain, histamine was studied through the HRH2 receptor in this study. The purpose of this study was to investigate the levels of HRH2 receptor in female zebra fish. The heart, ovaries and brain of the zebra fish were removed, and the RNA was extracted. Quantitative PCR was run to determine the levels of hormone receptors present. The results from this study could provide a better understanding of how Histamine affects zebra fish, which are a model organism for humans. (*Faculty sponsor: Timothy Breton*)

Poster # 18

RNA Expression of Beta-Endorphin in Zebrafish Tissues

Tamera True

Endorphins are amine hormones that block pain throughout the body and can induce happiness. The aim of this study is to identify beta-endorphin levels in zebrafish tissues. Zebrafish were dissected, with RNA being extracted and complementary DNA synthesized to be used with beta-endorphin primers in quantitative PCR. The results will be reviewed and it's expected to find high levels of beta-endorphins in the brain as well as the female and male gonadal tissue. Beta-endorphin expression in zebrafish could be used in future biomedical research in patients with chronic pain. (*Faculty sponsor: Timothy Breton*)

Poster # 19

Aromatic L-amino Acid (DOPA) Decarboxylase Expression in *Danio rerio*

Katherine Greenlaw

Dopamine is a neurotransmitter that functions in the central nervous system in movement, behavior, and memory. Perturbations in its production and regulation have been linked to conditions ranging from Parkinson's disease to Schizophrenia. The enzyme DOPA decarboxylase (DDC) is critical in the production of dopamine. The purpose of this research was to determine the expression of DDC in brain, digestive tract, and liver tissue of zebrafish (*Danio rerio*). RNA was extracted, and DDC expression levels were assessed using standard and quantitative PCR. These findings may provide foundational information for future dopaminergic research. (*Faculty sponsor: Timothy Breton*)

Poster # 20

RNA Expression of Proopiomelanocortin (POMC) in Female Zebrafish Tissue

Brittney Longmore

Regulation of appetite, sexual behavior, and melanin production is carried out by the precursor polypeptide proopiomelanocortin (POMC). POMC is cleaved into multiple peptide hormones. The aim of this study was to measure levels of POMC from RNA samples extracted from female zebrafish skin and brain tissues. Zebrafish tissues were extracted and preserved in RNAlater. RNA was extracted and DNase-treated. Complementary DNA was synthesized from the RNA samples, and quantitative PCR was used to measure expression levels. These results may provide more information on how POMC works in regulating appetite, sexual behavior and melanin production within different tissues in the body. (*Faculty sponsor: Timothy Breton*)

Poster # 21

Investigating Sex Hormone-Binding Globulin (SHBG) Expression in *Danio rerio*

Meghan Foye

Polycystic Ovary Syndrome is prevalent in women during their early twenties through adulthood. It is known that SHBG levels are decreased in women with this condition and are used as a marker to test the presence of this disorder. The purpose of this study was to determine where SHBG is found throughout the body. To do this, zebrafish (*Danio rerio*) organs were sampled, RNA was extracted, and a quantitative PCR test was done on the samples to determine expression levels in different organs. This could lead to a better understanding of how SHBG functions in different parts of the body. (*Faculty sponsor: Timothy Breton*)

Poster # 22

Growth Hormone Expressions in Zebrafish Tissues

Margaret Bertocci

Growth hormone is a very important vertebrate protein hormone in humans and other animals as it starts many processes such as cell regeneration. It is produced by the pituitary and moves through the blood to various tissues where it binds to receptors. In this study, growth hormone levels were compared in digestive tract and brain in adult zebrafish (*Danio rerio*). RNA was extracted from these samples and were used in qPCR. Results will be discussed and could provide more information in understanding how vertebrates develop and regulate growth signals across many cell tissues. (*Faculty sponsor: Timothy Breton*)

Poster # 23

Investigating Inhibin A (INHA) Levels in Organs of *Danio rerio*

Brooklyn Brown

Inhibins restrict the secretion of reproductive hormones by the pituitary gland. Inhibins are involved in regulating hypothalamic hormone secretion, gonadal hormone secretion, germ cell development and maturation, and embryonic development or bone growth. The purpose of this research is to investigate if there are higher levels of INHA in the heart, gonads, or liver of *Danio rerio* and understand the effect INHA has on these organs. To do this, RNA was extracted from zebrafish and quantitative PCR was done to assess expression levels in these organs. The results from this will be discussed, and could be used for future research. (*Faculty sponsor: Timothy Breton*)

Poster # 24

Insulin(INS) Gene Expression in The Liver and Digestive Tissue in *Danio rerio*

Sitey Muktar

Insulin is an anabolic hormone that signals the cell to take in glucose. To analyze the localization and the abundance of insulin gene expression, male *Danio rerio* livers, and digestive tissue were extracted, RNA extractions was performed and various methods including, DNase treatment, cDNA synthesis, and QPCR. The objective of this study is to identify how much of insulin will be expressed in the liver, and in other tissues, although past studies conducted shows that insulin is concentrated in the pancreas. Results will be discussed during the presentation. This study may provide foundational understanding of insulin in the body. (*Faculty sponsor: Timothy Breton*)

Poster # 25

Late-Glacial Marine Paleoecology in Norridgewock, Maine

Michael Paradis

Clay deposits in Norridgewock Maine hold a record of abundant marine fossils that likely lived in a shallow, tidal post-glacial Kennebec "Bay". The exposed gravel pit facies and ground-penetrating radar data collected

show nearshore marine beds prograding towards the Kennebec River. The fossil assemblage here is low in diversity, dominated by 6 to 7 species, but are in high abundance. Microfossils are present in the formation as well but not in large quantities. Taken together, these data indicate preservation of shallow-water fauna in a tidal-flat environment on the margins of a more active fan-delta near the shore of this embayment. (*Faculty sponsor: Julia Daly*)

Poster # 26

Arctic Fish Migration Diversity in a Changing Watershed

Ben Cloutier

To predict how aquatic organisms may be impacted by climate change, we need to understand physical alterations to the river and the way in which animals use the habitat. Broad whitefish (*Coregonus nasus*) is an abundant fish species in the lower Mackenzie River watershed in the Canadian Arctic, and can vary widely migration patterns—some remain in the river, and others migrate to the ocean and back. This project uses growth rings and chemical signatures in broad whitefish otoliths to identify watershed use throughout fishes' life times, which will then be used to inform species vulnerability to climate change impacts. (*Faculty sponsor: Rachel Hovel*)

Poster # 27

Cryptic Structure at Saddleback Wind and First Dates from the Rumford Inlier, West-Central Maine

Bryce Neal

Extensive bedrock exposures on Saddleback Wind and Bald Mountain, located in Carthage, Maine, provide an excellent laboratory to study the dynamic geologic history of the Appalachians right in our backyard. Recent field mapping on Saddleback Wind has revealed a new set of marker beds, the Royal Flush sequence, three times repeated on cryptic thrust faults. Also, using detrital zircon geochronology, new ages were calculated for rocks on Saddleback Wind and from the New Vineyard Quarry of supposedly similar age. These new age data question current geologic thinking and demand a reevaluation of west-central Maine geology (*Faculty sponsor: Douglas Reusch*)

Poster # 28

UMF Campus Energy Usage

Timothy Pacini

The goal of this project is to develop a comprehensive quantitative picture of energy use on the UMF campus and to systematize the process of monitoring energy use on campus. This entails gathering energy data from the biomass heating plant, the ground source heat pump (GSHP) systems, domestic hot water usage, and electricity usage. An emphasis will be on energy use in the residence halls, with the end goal of educating students and faculty about how to be more energy conscious. (*Faculty sponsor: Paul Stancioff*)

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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