

2013

## Symposium 2013

University of Maine at Farmington

Celebrating Undergraduate Research  
and Creative Achievements



May 1, 2013

Program of Events

Arts Nights Events, April 29 and 30



# Welcome to the Michael D. Wilson Symposium

*May 1, 2013*

*As with other institutions of learning and education, we can thank ancient Greeks for the symposium. Opportunities for debate, exchange of ideas, and social interaction—fueled by no small amount of food and drink—symposia built community, at least among the exclusively male participants of the time.*

*UMF is proud to improve upon that model with its campus-wide Symposium Day celebrating undergraduate research and creative achievement. Together with Arts Nights, Symposium Day showcases what's possible when you mix student ambition, perseverance, and talent with faculty mentorship and care.*

*It's possible that Greek participants of long ago discussed, as we will in our Symposium, "responsibility in subjectivity," being human," and the "sigma invariant"—at least the sigma part—but it's a good bet our presenters are far ahead on Sino-Rwandan relations, genetically modified organisms, parodies of Jane Austen, and many dozens of other fascinating topics you'll learn about in posters, presentations, and installations around the campus.*

*I write these words as a new president who has never experienced Symposium Day. Still, I feel I know it: how could a newcomer not be drawn to the evident joy, creativity, diligence, cooperation, and achievement of the day? Such anticipation has been stoked by the dozens of times I've heard members of the UMF community tell me that Symposium Day and Arts Nights are their favorite and most uplifting times of the year.*

*Events such as this don't simply happen. They are the product of hard work, material support, creative smarts, and deep commitment to a beloved UMF tradition. For these I thank, on behalf of a grateful university, the University Culture Committee, our vital faculty without whom not, devoted staff who get too little credit for their essential contributions, our loyal and generous supporters of undergraduate research and creativity, and, not least, the enterprising and intrepid students who put before us the fruits of their labor.*

*Symposium offers a groaning board of creative and intellectual sustenance. Indulge.*

**Kathryn A. Foster**

*President*

*First held in February 1999, the UMF Symposium has grown into a wonderful tradition. Each spring we take a day off from classes and from our normal routines to share in the exciting work of faculty and students—mainly students.*

*In showcasing their scholarly and creative projects through papers, performances, poster sessions, etc., we are honoring our most deeply felt values as a public liberal arts college—specifically, active and engaged learning, academic rigor, student-faculty collaboration, and service to promote the common good. I find it particularly exciting that Symposium provides an opportunity for everyone—from beginning students to seniors who are completing an exciting capstone project—to share their work in a public venue.*

*I congratulate all the presenters along with their teachers and mentors. In addition, special thanks to the donors and organizers who have made this exciting day possible.*

***Daniel Gunn,***

*Interim Provost and Vice President for Academic Affairs*

*Symposium Day is a wonderful opportunity for students to showcase their scholarly and creative work. During the academic year they pursue their interests through individual projects, group projects, and working in collaboration with faculty mentors. Symposium Day provides them with the stage to share their work with peers, friends, faculty, and staff. We send our congratulations to the students, and we also thank the faculty and staff who have helped the students achieve what they have today.*

***Kathy Yardley, Associate Provost and Dean of Education***

***Rob Lively, Associate Provost and Dean of Academic Services***

This symposium is organized by the University Culture Committee:

Marisela Funes, Chair

Gustavo Aguilar

Brian Cavanaugh

Misty Krueger

Paul Stancioff

Katherine Kemp

# Table of Contents

Welcome to the Michael D. Wilson Symposium .....	1
Michael D. Wilson Research Fellows and Scholars .....	4
ARTS Night(S) .....	6
UMF Trustee Professorship.....	8
All day events .....	9
Venue 1, Lincoln Auditorium, <i>Wilson Scholars and Trustee Professor</i> .....	9
Venue 2, C-23, Roberts Learning Center, <i>Math, Art, History, Miscellaneous</i> .....	15
Venue 3, Thomas Auditorium, <i>Natural Sciences</i> .....	19
Venue 4, North Dining Hall C, <i>Psychology 400</i> .....	25
Venue 5, CR 123, <i>Political Science</i> .....	25
Venue 6, The Landing, Student Center, <i>Readings, Literature</i> .....	28
Venue 7, Ricker 217, <i>International and Global Studies, Geography</i> .....	29
Venue 8, Art Gallery and Emery Arts Center, <i>Senior Art Presentations</i> .....	35
Venue 8, Ricker 114, <i>Computer Science</i> .....	36
Venue 9, Dearborn Gym, <i>Poster Session</i> .....	37
A Tribute to Michael D. Wilson .....	44
Index of Student Presenters.....	45
List of Faculty Sponsors.....	46

# 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 almost 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 are funded by a generous gift of Michael and Susan Angelides, in honor of their good friend, and UMF alumnus, Michael D. Wilson, class of 1976. The students were nominated by UMF faculty mentor and, after a competitive selection process, were chosen by the UMF Undergraduate Research Council.

## 2012-2013 WILSON FELLOWS

**Grace Kendall** - Born for a Storm: The Development & Consequences of Andrew Jackson's Volatile Personality  
Faculty Sponsor: Chris O'Brien

**Anna Soule** - Musical DNA: An Exploration of Nature versus Nurture in Musical Aptitude  
Faculty Sponsor: Jean Doty

**CeCelia Palow** - Patient Perception of Executive Functions in Parkinson's Disease by Stage  
Faculty Sponsor: Marilyn Shea

## FALL 2012 WILSON SCHOLARS

**Adam Black** - The Sigma Invariants of Groups with Finite Complete Rewriting Systems  
Faculty Sponsor: Nic Koban

**Jamie Phillips** - Escritos de Argentina: Writings from Argentina  
Faculty Sponsor: Linda Britt

**Kelsey E. Moore** - One White, One Red: Narratives of Girlhood  
Faculty Sponsor: Gretchen Legler

**Noelle Dubay** - "Some relation as yet unacknowledged": The Pragmatic Action of Henry James' The Ambassadors  
Faculty Sponsor: Kristen Case

**Chelsea Bartlett** - Lionheart: An Historical Novel

Faculty Sponsor: Pat O'Donnell

**Catherine Farsaci** - Miasma, Microbes and Medicine: Germ Theory and the Response to Infectious Disease

Faculty Sponsor: Chris O'Brien

## SPRING 2013 WILSON SCHOLARS

**Natasha Varney** - Global Business Strategy: A Strategic Perspective Employing Comparative Analysis

Faculty Sponsor: Waleck Dalpour

**Alexandra Portela** - A Fantastic Transformation

Faculty Sponsor: Dawn Nye

**Jonathan Knight** - Inner Liberties

Faculty Sponsor: Sarah Maline

**Joseph Knight** - Finding Authenticity

Faculty Sponsor: Dawn Nye

**John Harlow** - Research on the Contemporary Artistic Context of the Farm Security Administration

Faculty Sponsor: Kate Randall

**Lindsey LaForge** - Special Education Teachers' Perceptions: The Use of iPad Applications and High-Tech Communication Devices

Faculty Sponsor: Lance Neeper

**Matthew Towle** - Responsibility in Subjectivity: Constructive Encounters with the Other

Faculty Sponsor: Carolyn Culbertson

**Silas Lunetta** - Being Human

Faculty Sponsor: Jonathan Cohen

**Taylor Fitzgerald** - Buddhism and the Development of an Eco-conscience

Faculty Sponsor: George Miller

**Simone Thiry** - Consequences of FOIL for Undergraduates

Faculty Sponsor: Lori Koban

**Laura Cowie and Max Eyes** - reVista: A Look into Life Abroad

Faculty Sponsors: Marisela Funes and Jeffrey Thomson

# ARTS Night(S)

The Emery Community Arts Center, Alumni Theatre, UMF Art Gallery,

*UMF faculty and students sponsored by the Department of Sound, Performance and Visual Inquiry and ECAC*

**Monday, April 29 7PM**

**The Emery Community Arts Center Performance Space**

## **The 6th Annual Pixel Hunter Video and Animation Festival**

This festival is a screening of the best video and animation projects from UMF students over the past 12 months. From hairballs to product testing, this time-based media exhibition includes student work from divisions across campus. This is the sixth year for the festival. Past entries have been accepted to the Maine International Film Festival as well as the Portland Biennial.

**Tuesday, April 30**

*Events from at 4PM – 9:30pm Emery Performance Space, surrounding area and Alumni Theatre  
Performances from SPVI Project 3 and THE 278 Commedia dell'arte classes*

**Faeries of Midsummer: Spectacle and Concept** – a runway presentation of A Midsummer Night's Dream faeries with costume and makeup designed by Patrick Rizzo and Jade Wells

**Fighting Students: Part 1** – a choreographed comedic stage fight by Ahnna-Balai Beane, Austin Hayes and Cassidy Small

**Fighting Students: Part 2** – “Let's challenge ourselves some more!” a second choreographed stage fight with surprise elements

**The Audition: The Beginning of the End** – an audition piece performed by Sarah Nadeau capturing the essence of comedic and dramatic monologues that will execute the end of a four-year journey of growth, learning and passion to open a door to a new chapter of life.

**Do I Dare Disturb the Universe?** – This performance begins with Eliot's poem and questions decision-making and whether you can still find fulfillment in life after passing up a chance to do something great.

**The Fall of the Empire** – A performance of contemporary composer Frederic Rzewski's, The Fall of the Empire. The piece explores recurring elements inherent in social and political culture that generally lead to the demise of an empire. Performed by David Carr and Gustavo Aguilar on various percussion instruments.

## Alumni Theatre

**Stations: Connections Through Solitude** – Nathan Vallette creates a participatory music performance as audience members are asked to simultaneously spend time at various “stations” to act as proxies, privately experiencing a portion of sonic score and projecting their interpretations, creating a new, collectively unique piece.

## Emery area – parking lot 5PM

For the fifth year in an ARTS Night celebration – the return of Phil Carlsen’s automobile orchestra -  
**CAR-CAR CAN-CAN** – a song and dance routine for automobile chorus line

**Wed, May 1**

## Emery Performance Space

Beginning at 4PM

**Phenom-anon** – an installation of light, sound and photography by Brian Parise that asks: Who are you? Who am I? And do we exist on the same plain?

**Different** - a short film by Richard Russell detailing the college experience and interpersonal relationships with a screenplay by Kelsey Metzger

**The Record** – A short film adaptation of a play originally performed at UMF several years ago. The film deals with suicide and depression as captured by the lens of video blogging.

**Whispers** – a sound installation by Kaitlinn Paquin - An empty space is never hollow. In fact, it seems the most chaotic thoughts occur in silence. This installation will develop characters and their narratives using found sound and raw recordings.

5:30-6:30pm

### **Adult Education: The Power of Possibility**

*Michaela Blow, Chelsea Browning-Bohannah, Thomas Cyr, Marina Giovannini, Innes Herdan, Madeleine Hicks, Kevin Lapointe, Lindsay Niles, Georgia Qualey, Zachary Stevens, Kelsey Theriault*

This presentation will highlight a service-learning collaboration among Franklin County Adult Education, Somerset County Jail, students enrolled in Professor Gaelyn Aguilar's ANT250S: Ethnography course, Professor John Messier, and student researcher Marina Giovannini. Our main framework will be showcasing the collaboration's expansive process of learning that speaks to the promotion of active citizenship and to the transformative power of adult education, despite the numerous social, cultural, and economic barriers that many adult learners face. All are welcome. Sponsored by the UMF Laboratory for the Advancement of Critical/Creative Diversity and the Emery Community Arts Center.

## 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, Dr. Gretchen Legler, Professor of Creative writing, will enlighten us with a deeper understanding of happiness, at 11:20 in Lincoln Auditorium. All students, faculty and staff are invited.*

*Congratulations to all of our faculty and student scholars.*

*Daniel Gunn, Interim Provost*

### 2010-2011 Trustee Professor Gretchen Legler

11:20 -12:00 Lincoln Auditorium

#### **On The Way to the Holy Lake: A Journey in the Kingdom of Bhutan**

What is it that Americans don't understand about happiness? Dr. Gretchen Legler, UMF's newest Trustee Professor, spent a year as a Fulbright Scholar in the Kingdom of Bhutan, the "Land of Gross National Happiness." Her presentation, "On the Way to the Holy Lake," will include images, music, and a reading of her creative work, all exploring the richness of this Himalayan Buddhist culture and its radical approach to well-being, for its own citizens and the world.

#### **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

## All day events

All Day

### **Photographs of England and Spain, exhibited in the Student Center outside of South Dining Hall**

*Students enrolled in LIA 135, Digital Photography, during the 2011 and 2012 May terms.*

This new exhibition presents images taken by UMF students enrolled in the May term digital photography classes in 2011 and 2012. On a 2-1/2 week field trip to England and Spain, students photographed many sites and events including: Stonehenge at sunset, Stratford-upon-Avon, Warwick Castle, crew races at Oxford University, Roman Baths, Gaudi's Sagrada Familia cathedral in Barcelona, the Corpus Christi festival and the Fishermen's Festival in a Spanish village, the Saturday market in Girona, and much more. *(Faculty sponsor: Ralph Granger)*

All Day

### **The UMF-Trail: American Studies Keywords and Identity**

*Chelsea Bartlett, John Buys, Nicole Clark, Carinne Haigis, Hannah Kavanaugh, Catherine MacDonald, Christina Quach, and Ashley St. Pierre*

The UMF-Trail is conceptually modeled after the Freedom Trail in Boston; like the Freedom Trail it aims to represent various concepts, loosely connected to "identity." It does so by allowing viewers to move from station to station following a map. Each station will feature a different keyword, such as body, community, society, family, perception, performance, gender, and culture, as well as a display of material artifacts. The keyword's meaning will be explained by tracing its history in American studies. Through this explanation the material artifact(s) will become legible. The UMF-community is invited to explore the trail throughout the day and to attend the group presentation in Roberts C-23 at 3:00. *(Faculty sponsor: Sabine Klein)*

## Venue 1, Lincoln Auditorium

*Wilson Scholar Presentations and Trustee Professor Lecture*

9:00 - 9:20

### **Musical DNA: An Exploration of Nature versus Nurture in Musical Aptitude.**

*Anna Soule*

Start with an exploration of correlation between the nature-versus-nurture components of musical aptitude. How much is hereditary (musical aptitude genes associated with AVPR1A-Haplotypes)? How much is environmental (exposure to music experiences and education)? Can correlation be determined between music

and learning, in so far as how the nurturing of musical aptitude and creative expression informs learning processes, both in the developmental stages of life and the maturation of adulthood? What implications might these discoveries have on society as a whole? Three components of research: Genotyping, Standardized Testing, and Survey. *(Faculty sponsor: Jean Doty)*

9:20 - 9:40

## **"Born for a Storm": Power and Andrew Jackson's Ethics in the Honor Culture of the Old South**

*Grace Kendall*

Historian Bertram Wyatt-Brown described Andrew Jackson as a man who possessed "a complexity of character that was truly astonishing." Jackson's contemporaries and historians alike struggled and continue to struggle to explain a man whose behavior could be at once rash and calculating, ruthless and tender. In an effort to understand Jackson's complexity, this presentation will examine the ways in which social power structures influenced his behavior. The presentation will touch upon Jackson's experiences as military leader, slave owner, and family man, and it will specifically examine how power relationships may have influenced Jackson's ways of interacting with those around him. *(Faculty sponsor: Christopher O'Brien)*

9:40 - 10:00

## **The Burdens of Disease and Dissent: Medicine and Society During Epidemics in the Nineteenth Century**

*Catherine Farsaci*

Victims of cholera are said to look like blue monkeys. This is one of the many gems I have found while researching for my senior thesis. The nineteenth century was a bleak era in medicine - at the start, physicians had yet to cure an illness, but it was also an era of great change. During three of the worst epidemics in history, innovative scientists produced a wealth of scientific research that changed the existing paradigms. This fall I received a Wilson Award, and visited an archive at UCLA. During my presentation I will elaborate on my work with pictures I took in Los Angeles. *(Faculty sponsor: Christopher O'Brien)*

10:00 - 10:20

## **ReVista: A Look Into Life Abroad**

*Laura Cowie and Max Eyes*

ReVista is a bilingual, mixed-media journal, in which Eyes and Cowie document and explore their influences and interactions during their time abroad in Córdoba, Argentina. Today, the artists ask: "¿Como se traduce?" or "How does one translate?" to represent their diverse interests in Creative Writing and Spanish. They will convey their cultural immersion through poetry, prose, and photography. Please join them for a look into

spoken word, translation, and culture. There will be delicious food available as well as copies of ReVista at the International Programs reception in The Landing at 3:30. *(Faculty sponsor: Marisela Funes)*

10:20 - 10:40

## **Break**

10:40 - 11:00

### **Differentiability of Executive Functioning and Reinforcement Learning in Parkinson's Disease Patients Based on Their Perception of the Difficulty of the Disease in Different Stages**

*CeCelia Palow*

Parkinson's disease (PD) is a progressive chronic illness that is characterized by its debilitating motor symptoms, and is accompanied by cognitive and emotional ailments. The current study uses a battery of cognitive measures to assess how cognition advances through the stages of PD. In addition, this study is a part of a longitudinal study that aims to understand whether the cognitive impairments seen in patients can be slowed depending on their attitudes towards the difficulty of the disease. Both qualitative and quantitative data will be explored that addresses these connections. *(Faculty sponsor: Marilyn Shea)*

11:00 - 11:20

### **Responsibility in Subjectivity: Constructive Encounters with the Other.**

*Matthew Towle*

Traditional ethical systems grounded in rationality tend to overlook key aspects of human nature which have hindered their applicability. The encounter with the other is so significant in the construction of what we define as the "self" that it cannot be passed over in any ethical relations. The way in which we interpret this encounter, more importantly, determines the very ethics one may construct. What is the role of the other in subject formation? How do we come to interpret the other in this phenomenological/ontological encounter? And, finally, how does this interpretation necessitate ethical treatment of the other? *(Faculty sponsor: Carolyn Culbertson)*

11:20 - 12:00

### **On The Way to the Holy Lake: A Journey in the Kingdom of Bhutan**

*Gretchen Legler*

What is it that Americans don't understand about happiness? Dr. Gretchen Legler, UMF's newest Trustee Professor, spent a year as a Fulbright Scholar in the Kingdom of Bhutan, the "Land of Gross National Happiness." Her presentation, "On the Way to the Holy Lake," will include images, music, and a reading of her

creative work, all exploring the richness of this Himalayan Buddhist culture and its radical approach to well-being, for its own citizens and the world.

12:00 - 12:05

### **The Walter Sargent Undergraduate Research Mentor Award**

*Nicholas Koban*

We will be announcing that the mentoring award will be named the Walter Sargent Undergraduate Research Mentor Award, and we will be naming Walter Sargent as this year's recipient. The award will be presented to his wife, Bonnie.

12:05 - 1:00

### **Lunch Break**

1:00 - 1:20

### **Buddhist Environmental Philosophy**

*Taylor Fitzgerald*

I will be presenting on the feasibility of finding an environmental ethic in Buddhist philosophy. I believe finding the right solution to environmental issues relies upon our developing a healthy relationship with nature, so I will be focusing on what Buddhism presents as the ideal self, and how our modern concept of selfhood needs to change if we wish to establish well-being in ourselves and the environment. To limit the scope of this project, I plan to include only those Buddhist traditions that focus on humanity's relationship with nature and the interconnectivity of all beings. *(Faculty sponsor: George Miller)*

1:20 - 1:40

### **The Sigma Invariant of Groups with Finite Complete Rewriting Systems**

*Adam Black*

The sigma invariant is a geometric invariant for discrete finitely generated groups. After a brief introduction to the topic, this talk will give an overview of my research investigating the sigma invariant of groups that admit finite complete rewriting systems. This will include the methods used, a few examples, and the progress that was made. *(Faculty sponsor: Nicholas Koban)*

1:40 - 2:00

## **Lionheart: An Historical Novel**

*Chelsea Bartlett*

Alexander the Great is commonly accepted as the best military leader the world has ever known - yet, not much is known about him. His story has slipped through time, fallen through the cracks. His legacy burnt to the ground when the Library of Alexandria was destroyed. One character from his life has nearly been erased: a man named Hephaestion. Hephaestion represents those parts of Alexander that history would have you forget - his alcoholism, his temper, his passion and his sexuality. Lionheart is a novel-in-progress, following the life of Hephaestion and his influence on one of the greatest men to ever live. (*Faculty sponsor: Patricia O'Donnell*)

2:00 - 2:20

## **Consequences of "FOIL" for Undergraduates**

*Simone Thiry*

"FOIL", an acronym for "First, Inner, Outer, Last" is widely used by Pre-Algebra and Algebra secondary teachers. The theory behind this acronym is that it helps students apply the distributive property when multiplying two binomials. We believe that teaching "FOIL" in lower level math courses may inhibit students' success once they reach university. We surveyed first year students at UMF to determine the existence of a long-term correlation between the "FOIL" method and difficulty performing the distributive property on higher order polynomials. The presentation will discuss method and results, as well as alternative strategies for teaching students to multiply polynomials. (*Faculty sponsor: Lori Koban*)

2:20 - 2:40

## **Break**

2:40 - 3:00

## **Special Education Teachers' Perceptions: The Use of iPad Applications and High-Tech Communication Devices**

*Lindsey LaForge*

Augmentative and alternative communication (AAC) devices are a type of assistive technology that people with speech or language challenges use to supplement or replace non-functional speech. This presentation will focus on a recent research study that investigated special education teachers' perceptions of the non-technical differences between iPad applications for communication and other forms of high-tech AAC devices. Qualitative interview methods were used to explore perceptions related to effectiveness, availability, social acceptance, and other factors that influenced the learning and communication needs of students with

disabilities. The current status of the literature, recent findings, and future directions for research will be discussed. (*Faculty sponsor: Lance Neeper*)

3:00 - 3:20

### **Escritos de Argentina: Writings from Argentina**

*Jamie Phillips*

Phillips lived and studied Spanish in South America for six months. This reading is a culmination of her experiences immersed in the castellano rioplatense and lunfardo of the city of Córdoba, Argentina. The writings deliberate on the creative process of writing in a language that is not one's native tongue. Note: Parts of the reading will be translated into English. (*Faculty sponsor: Linda Britt*)

3:20 - 3:40

### **Being Human: A Study of Human Nature**

*Silas Lunetta*

The words "human being" bring a particular yet subjective idea to mind; the term is that which all individuals use to classify themselves and others, but are there limits to this concept? While everyone uses the term, there is no universal agreement as to what it means. This study examines the different ways we conceive of ourselves and others and, in turn, the ethical parameters implied by the way one classifies a human being. (*Faculty sponsor: Jonathan Cohen*)

3:40 - 4:00

### **“Some Relation as Yet Unacknowledged”: The Pragmatic Action of Henry James’ The Ambassadors**

*Noelle Dubay*

This project continues the tradition of tracing intersections of philosophy and literature--namely American pragmatism and Henry James' prose. According to the pragmatic maxim, subjects and objects exist always in relation, rather than as discrete entities. As such, our knowledge of the world isn't discrete; it is bound to perception--to the interplay between subject and object. A similar quality features in James' The Ambassadors. This paper attempts to understand the characters of James' novel as acting pragmatically within the text and, further, considers the relationship between book/reader as a fundamentally pragmatic one, in which the narrator plays a key navigational role. (*Faculty sponsor: Kristen Case*)

## Venue 2, C-23, Roberts Learning Center

*Math, Art, History, Miscellaneous*

9:00 - 10:00

### **Climate Change Calculus**

*Students in MAT141-001 and MAT141-002*

Calculus I students will examine the mathematics of climate change in ten five-minute presentations. Topics include the viability of wind power in Maine, vehicle fuel efficiency vs. CO<sub>2</sub> emissions, deforestation of the world's rain forests, hydroelectricity, albedo, the practicality of reducing CO<sub>2</sub> in the atmosphere, the effects of latitude on solar power efficiency, and the melting polar ice caps in relation to sea level increase and loss of habitat and biodiversity. *(Faculty sponsor: Peter Hardy)*

10:00 - 10:20

### **material**

*Lauren Arnold, Joshua Cothen, Benjamin Grannell, Austin Hayes, Kyle Morison, Frank Parsons, Cassidy Small, Mallory Smith, Nathan Sylvester, and Erin Wood*

A collaborative video production by the art, music, and theatre students in the Project 2 class. In the video, an imaginary friend comes to life out of the doodles in the pages of a bored student's notebook and takes her off on a variety of adventures. *(Faculty sponsor: Philip Carlsen)*

10:20 - 10:40

### **Break**

10:40 - 11:00

### **Joe Hill: How the I.W.W. Made a Martyr**

*Alida Peake*

On the morning of November 19, 1915, Joe Hill, a songwriter for the Industrial Workers of the World (I.W.W.), was executed on flimsy evidence in Salt Lake City, Utah. Before he was executed, the I.W.W. (or Wobblies), a labor union founded with the goal of organizing workers into "One Big Union," flocked to his support. Members organized a publicity campaign that involved, among other things, sending tens of thousands of letters requesting a new trial to the Governor of Utah. This paper argues that it was these actions of the I.W.W., more than Hill's songwriting or union activism, that transformed him from a common worker to a hero of the American Labor Movement that lasts until today. *(Faculty sponsor: Allison Hepler)*

11:00 - 11:20

## **Arnold's Benediction: A New Look at the Causes for Benedict Arnold's Treason**

*Luke DiSilvestro*

Benedict Arnold died in London in 1801 as a commissioned British army officer. Up until 1780, however, he was a celebrated American general known for his valor and ferocity on the battlefield of the Revolutionary War. In 1780, he defected to British ranks and ever since, historians have blackened his infamy with the tale of his treason, attributing it ever consistently to self-serving interests. A factor that is constantly overlooked, however, is his misgivings with the Franco-American alliance. Signed two years before his treason was unveiled, I argue that it was this alliance that led to his defection. *(Faculty sponsor: Christopher O'Brien)*

11:20 - 11:40

## **Huey Long and His Legislative Efforts**

*Ethan Herrell*

When Huey Long ascended to the governor's mansion in Baton Rouge, Louisiana, in 1928, it marked a new era in the state's politics. Long began an ambitious legislative program and publicity campaign to advance his populist agenda. He became enormously popular and gained considerable power through corruption and patronage, but his legislative achievements were surprisingly limited. How did this happen? What emerges from the testimony of his political allies and the legislative record was that Long quickly discovered that Louisiana's demographic diversity created a kind of political schizophrenia. I argue that this ultimately prevented him from making coalitions enduring enough to fully realize his goals. *(Faculty sponsor: Christopher O'Brien)*

11:40 - 12:00

## **The Cause for Muslim Defeat at Jerusalem during the First Crusade**

*Matthew George*

In 1097, when the crusaders arrived in the Eastern Mediterranean, the Muslim world was divided between the Seljuk Turks and Fatimid Egyptians. The divide was not only one of empires, it also was a theological split. While scholars have tended to overlook this topic, this paper will argue that the Sunni/Shiite divide was a primary reason for the disunity between these two factions, and thus the inability to stop the crusader invasion. Jerusalem will be used as a focal point for this study, showing the division between the two empires. *(Faculty sponsor: Christopher O'Brien)*

12:00 - 1:00

## **Lunch Break**

1:00 - 1:20

## **Shackled in Uniform: How Mistreatment in Baseball Made Slaves of Players**

*Christopher Herrion*

This paper argues that "America's pastime," the game engrained in the popular psyche for more than 100 years, seemed at its inception like a slave system to the men who wore the woolens. Largely invisible to fans of baseball, there was often turmoil between players and owners. This presentation will attempt to shed light on the darker side of baseball, by examining the inner workings of the sport's original labor deals and drawing parallels between baseball's treatment of players and the American slave labor system. *(Faculty sponsor: Christopher O'Brien)*

1:20 - 1:40

## **Revival of the Brewing Industry: How Prohibition Shaped Success**

*Madison Moody*

On February 16th, 1933, the House of Representatives passed the 21st Amendment to the United States Constitution beginning the process of the repeal of Prohibition and sending the matter to state conventions for ratification. The handful of breweries that had survived the fifteen years without beer profits, gained valuable experience in marketing and distribution through diversification into such markets as soft drinks, cheese and ice cream. This paper shows how such diversification translated to post-Prohibition business success for companies such as Anheuser-Busch, Pabst and Yuengling despite renewed regulation and taxation. *(Faculty sponsor: Christopher O'Brien)*

1:40 - 2:00

## **An Analysis of Western Leadership**

*Evan Patton*

"An Analysis of Western Leadership" argues that there are several universal traits including charisma and wisdom that have defined the popular understanding of what makes a good leader in the Western world. Using Marcus Aurelius, the last of the "good Caesars" as the focal point, the paper examines his portrayal by historians over millennia and finds that, seemingly free from time, a consensus on fundamental attributes of leadership remains in these works. For modern historians, who argue that both chronology and culture matter, this uniformity presents a troublesome difficulty. Is it possible that past and present values have remained unchanged? *(Faculty sponsor: Anne Marie Wolf)*

2:00 - 2:20

## **Abroad! A Semester in Argentina**

*Amanda Barrows*

This presentation will encompass the experiences of a UMF student during a semester abroad in Cordoba, Argentina--through a new UMF study abroad program in alliance with the National University of Cordoba. Special emphasis will be placed on the cultural, linguistic, and academic components of this study abroad experience. Listeners will receive insight regarding local traditions and landmarks, as well as a basic understanding of some cultural aspects unique to Argentina. Time will also be available at the end of the presentation to address any questions the audience may have. *(Faculty sponsor: Marisela Funes)*

2:20 - 2:40

## **Healthy Eating on a College Budget**

*Aimee Clarrage*

Living on a tight college budget? Want to eat healthier options, but can't afford it? With a few helpful tips, you will learn to navigate your way through the grocery store buying healthier foods that won't break the bank. *(Faculty sponsor: Denise Boothby)*

2:40 - 3:00

## **General Education Teachers' Experiences Working with Individuals with Disabilities**

*John Buys, Melaine Christensen, Meng Hardy, Simone Thiry, and Kelsea Trefethen*

In this presentation, future general education teachers will share their findings from a recent class research project that investigated current general education teachers' experiences and recommendations for working with students with disabilities in their schools. Qualitative methods were utilized including interview development, data collection, and data analysis. A total of 19 secondary educators from a variety of disciplines were interviewed regarding their experiences collaborating on Individual Education Programs, providing accommodations, including students with disabilities in their classrooms, and their advice for future general education teachers. An overview of the procedures, findings, and recommendations for future practice will be discussed. *(Faculty sponsor: Lance Neeper)*

3:00 - 4:00

### **The UMF-Trail: American Studies Keywords and Identity**

*Chelsea Bartlett, John Buys, Nicole Clark, Carinne Haigis, Hannah Kavanaugh, Catherine MacDonald, Christina Quach, and Ashley St. Pierre*

The UMF-Trail is conceptually modeled after the Freedom Trail in Boston; like the Freedom Trail it aims to represent various concepts, loosely connected to "identity." It does so by allowing viewers to move from station to station following a map. Each station will feature a different keyword, such as body, community, society, family, perception, performance, gender, and culture, as well as a display of material artifacts. The keyword's meaning will be explained by tracing its history in American studies. Through this explanation the material artifact(s) will become legible. The UMF-community is invited to explore the trail throughout the day and to attend the group presentation which explains the idea of creating a material culture project as a means of exploring American culture. *(Faculty sponsor: Sabine Klein)*

## **Venue 3, Thomas Auditorium**

*Natural Sciences*

9:00 - 9:20

### **The Natural History of the Mountain Lion Puma Concolor in Maine and the Analysis of Genetic Material to Identify Individuals of the Species**

*Dmitriy Skoog*

We will review classification of Puma concolor as well as its natural history in North America. Basic biology of diet and range will be discussed. Puma were likely extirpated from Maine long ago, but numerous sightings lead many to believe that they are here. Possible sources for individuals sighted in Maine will be discussed, including migrants (from officially recognized wild populations in North America), escaped captive animals, and the possible survivors from the native population. We conducted procedures to sequence the cytochrome oxidase 1 gene for submission to the Barcode of Life Database (BOLD), as will be described.

*(Faculty sponsor: Richard Robinson)*

9:20 - 9:40

### **The Role of ASPA in Glomerular Barrier Function**

*Kelsey Ottmann*

This study utilized Danio rerio as a model system to study renal disease and proteinuria. The aim of this specific research was to examine the relationship between ASPA and the glomerular filtration barrier of the kidney. The ASPA gene was knocked out in zebrafish via morpholino antisense injections and embryos were monitored for the development of renal phenotypes. Various assays systems were carried out to tract

proteinuria and electron microscopy was performed to verify renal damage. This study confirmed that the knockdown of ASPA produces a renal phenotype related to proteinuria; therefore ASPA is essential in maintaining the integrity of the glomerular filtration barrier. (*Faculty sponsor: Jean Doty*)

9:40 - 10:00

## **The Effects of Temperature on the Efficacy of T4 Bacteriophage**

*Haley Churchill*

This project has been designed to test the effects of high and low temperatures on the ability of T4 bacteriophage to infect their target cells, *Escherichia coli*. Bacteriophage have the potential to be an alternative to no-longer effective antibiotics. However, in a climate with increasing variation in temperature, the effectiveness of bacteriophage may be at risk. I believe, that when bacteriophage are exposed to the upper and lower limits of their temperature threshold, they will be less effective at infecting their target host cells, making them a less viable alternative to standard antibiotics due to the occurrence of structural mutations. (*Faculty sponsor: Jean Doty*)

10:00 - 10:20

## **Survey of the Diverse Microbiomes of the Human Skin and Mouth**

*Samantha Allshouse and Kanika Pathania*

We examined the various types and quantities of bacteria found on humans from different countries and the United States. Bacterial samples were collected from inside the mouth and the skin of the inner elbow to compare the types of bacteria and the approximate number. Our main objectives are to compare the samples from the various regions of the United States to those samples collected exclusively from Maine, and to compare the samples collected within the state of Maine to one another. The research will help determine if the environment in which someone originates has any effect on their bacterial composition. (*Faculty sponsor: Jean Doty*)

10:20 - 10:40

## **Break**

10:40 - 11:00

## **Triclosan; Helpful Antibacterial, or Hazardous Chemical?**

*Brewster Cherkis and Jesse Williams*

Triclosan is a common chemical found in hundreds of antibacterial products, including soap, toothpaste, mouthwash, deodorant and more. Although the FDA has cleared Triclosan for use in these products, our

skepticism has led us to test its safety. Through *Danio rerio* (Zebrafish) embryo experimentation, our goal is to determine the environmental toxicity and developmental effects of Triclosan. (Faculty sponsor: Jean Doty)

11:00 - 11:20

### **Mutations of Tumor Suppressor Genes in *M. Drosophila* from Exposure to Carcinogens**

*Nicole Bernhardt and Sarah Pokorny*

The goal of this experiment is to compare the gene sequences of fruit flies exposed to both cigarette smoke, a known carcinogen supported by research, and scented fabric softener, a newly predicted carcinogen. We hope to observe the same or similar gene mutations caused by the two different substances to confirm that the fabric softener is indeed carcinogenic. Cigarette smoke is known to mutate suppressor genes, leading to cancer. We hope to observe the same type of mutation in the tumor suppressor genes of flies exposed to cigarettes and fabric softener. (Faculty sponsor: Jean Doty)

11:20 - 11:40

### **Outcomes of Embryonic Zebrafish Exposed to Various Concentrations of Hydrogen Peroxide With and Without Various Concentrations of Iron Catalyst**

*Nicholas Camic, Jessica Douglass, and Alyssa Renzi*

The purpose of this study was to observe and interpret developmental abnormalities in embryonic zebrafish exposed to water containing various concentrations of hydrogen peroxide, with and without various concentrations of an iron catalyst. When exposed to hydrogen peroxide, zebrafish have exhibited damage to the COI and the ATP6 mitochondrial genes. These genes have been linked to prostate cancer in adult men, and ATP6 specifically has been linked to neurological diseases in children. (Faculty sponsor: Jean Doty)

11:40 - 12:00

### **The Impact of Varying Concentrations of Phytoestrogen on Survivorship and Hatch Rate of Zebra Fish from Embryonic to Post Hatch Larval Stages**

*Christa Bonney and John Fitzgerald*

There is increasing public concern about the introduction of xenoestrogens to our domestic water supplies, and the potential impact on stream spawning fish species. To test the potential impact of estrogens upon the hatching rates and survivability of larvae we exposed *Danio rerio* eggs to a range of phytoestrogen concentrations ranging from 0.1ng/L to 1000ng/L. From this we hope to gain an understanding of the minimum impact concentration levels that cause no observable effects and maximum impact concentration levels that produce no surviving offspring. (Faculty sponsor: Jean Doty)

12:00 - 1:00

## **Lunch Break**

1:00 - 1:20

### **Health Effects of Stevia Extract on the Growth and Development of Zebrafish Larvae**

*Hanna Packard, Kelci O'Neill, and Samuel Spahr*

The goal of this project is to study the possible link between the steviol glycoside Rebaudioside-A (from Stevia leaf extract), and genetic mutations in zebrafish. Rebaudioside-A is a natural sweetener composed of rebiana and marketed as a sugar substitute. Effects of this sweetener will be tested by exposing zebrafish eggs to pure Stevia extract and observing the larva for possible abnormalities during their development. There is limited research on the developmental and mutagenic effects of Stevia extract, so this research will greatly add to the scientific findings, considering that DNA breakage associated with Stevia in rats has been observed previously. *(Faculty sponsor: Jean Doty)*

1:20 - 1:40

### **The Synthetic Expression of Bioluminescence by Genetic Manipulation**

*Eric Dufour, Luke Klinker, Rachael Leary, and Trevor Palmatier*

This experiment was designed to reproduce a method that would allow the incorporation of a bioluminescent gene apparent in a variety of jellyfish into zebrafish and plants resulting in fluorescence under ultraviolet light. Previous studies have been conducted transmitting firefly and jellyfish bioluminescent genes into other organisms from *Escherichia coli* to *Felis catus*. Photoproteins in the presence of ultraviolet light and oxidation highlight the overall organism in a manner that makes it fluorescent. The significance of this procedure will determine the biological effects in an organism that does not naturally contain the gene. *(Faculty sponsor: Jean Doty)*

1:40 - 2:00

### **Transfer of Antibiotic Resistance Among Isolated Bacterial Colonies (In 3D)**

*Keifer Boguhn and Jacob Taylor*

It has been documented that bacteria can pass along traits for antibiotic resistance through direct contact, but recently, studies have shown that traits can be passed spontaneously even without contact. We plan to compare the exchange of resistance in a control group, two cultures in direct contact, and two cultures without contact to find the degree of resistance to the antibiotic ampicillin so that eventually, when this mechanism is better understood, we are able to devise new ways to prevent bacterial infections from killing hundred of thousands of people a year. *(Faculty sponsor: Jean Doty)*

2:00 - 2:20

## **Determination of the Sequences of a Duplicated Intergenic Locus in the Chloroplast Genome of *Oxalis oregano***

*Patrick Kelly and Emily Littlefield*

Amplification of loci gives one PCR product in some plants, but two in others. Those latter plants cannot be sequenced. To solve this problem, we located the chloroplast DNA of redwood sorrel (*Oxalis oregana*) and amplified the petA-psbj intergenic sequences by ligating the "double" PCR products into a plasmid vector, using recombinant DNA with *E. coli* for transformation, and used colony PCR to screen for clones that contained one or the other PCR product. Each of these products was then sequenced. The data that will be collected will be used in a discussion of phylogenetic study of redwood sorrel. (*Faculty sponsor: Jean Doty*)

2:20 - 2:40

## **Break**

2:40 - 3:00

## **Investigating which Eukaryote DNA Repair Genes Restore Ribosomal DNA (rDNA) Stability in Yeast (*S. cerevisiae*) During Sporulation**

*Dmitriy Skoog*

In human solid tumors, rDNA instability is increased relative to non-tumor cells in >50% of patients, making rDNA instability among the most correlated genomic alterations with cancer. rDNA instability is the underlying cause of aging in yeast. Accumulation of instability occurs fastest in rDNA region, eventually initiating DDR and permanently arresting replication. Yeast cultures persist by repairing rDNA of the next generation. This experiment's goal is preventing sporulation-induced restoration of rDNA by RNA interference silencing of three suspected DNA repair genes, MRE11, DMC1, and RNH1. Telomere shortening and rDNA instability are believed to be equally important for triggering cell senescence. (*Faculty sponsor: Jean Doty*)

3:00 - 3:20

## **Bacterial Persistence: Implications for UTIs and Antibiotic Utilization**

*Heather Budzko and Kelsey Ottmann*

This project was designed to test the extent to which bacteria may become persistent against antibiotics. Due to an altered mechanism(s) that these cells exhibit, they are able to evade mortality when coming into contact with antibiotics. Utilizing this dangerous mechanism persistent bacterial cells are able to cause reoccurring infections, such as urinary tract infections (UTIs). This study investigated the link between persistent bacteria and urinary tract infections by examining a common uropathogenic bacterium, *Escherichia coli*, and looking at the mechanism by which these bacterial cells gain persistence when treated with antibiotics such as Ampicillin. (*Faculty sponsor: Jean Doty*)

3:20 - 3:40

## **The In Vivo Impacts of Various Antimicrobial Toothpastes on the Oral Microflora and Resulting Impacts on Human Health**

*Sarah Bunch, Nicholas Camic, and Luke Klinker*

The purpose of this study is to observe the consequences of various antimicrobial toothpastes on the oral microflora. This may help us understand which toothpaste of the studied samples is the most effective at both maintaining healthy oral bacterial levels and balancing the levels of helpful and harmful bacteria. The quantification of oral bacteria from pre- and post-brushing may aid in determining which toothpaste is best at maintaining oral health. *(Faculty sponsor: Jean Doty)*

3:40 - 4:00

## **Determining the Correlation Between Triclosan Resistance and Overall Antibiotic Resistance in *Micrococcus luteus***

*Haley Churchill and Jasmine Nixon*

The purpose of this project is to see if *Micrococcus luteus* that develops resistance to triclosan, simultaneously builds resistance to antibiotics such as penicillin and amoxicillin. As the use of triclosan in household products becomes more common and sustained, bacteria have been seen to build resistance over time, effectively creating super-bugs. It is still wholly unclear, whether or not there is a direct correlation between resistance to an antibacterial agent and resistance to antibiotics. We believe, that as a result of triclosan resistance that was developed due to repeated exposures, *M. luteus* will become cross-resistant to other antibiotics. *(Faculty sponsor: Jean Doty)*

4:00 - 4:20

## **Competition Study of *C. albicans* under GI Conditions in Nutrient Deficient and Nutrient Balanced Environment with Treatment of *Acidophilus* in Response to Yeast Overgrowth**

*Dana Fioretti and Matthew Lamare*

*C. albicans* overgrowth has been documented in the GI tracts of individuals with poor nutrition, specifically those with diets high in glucose and carbohydrates. *C. albicans* overgrowth activates chronic stimulation of the immune system, predisposing organisms to degenerative developments. *Acidophilus*, a bacterium found in the GI tract and in dairy products, is considered to be a probiotic because of its ability to restore healthy gut bacteria. The goal of this project is to compare the ability of *Acidophilus* to compete with *C. albicans* under simulated GI conditions. *(Faculty sponsor: Jean Doty)*

## Venue 4, North Dining Hall C

### *Psychology 400*

9:00 - 12:00 (with 10 minute break at around 10:25)

#### **Research Methods in Psychology**

*Ashley Babin, Mariah Barden, Alexandra Carpenter, Garth Clark, Ericka Danforth, Hazel Everett, Joshua Flowers, Abigail Gilbert, Autumn Greenleaf, Chris Hall, Chelsea Hill, Leanne Keenan, Tyler Lepack, Stuart Lindahl, Ansel Mallonee, Trey Hunter Nelson, Lauren Perkins, Bre Peters, Macadez Richard, Alexander Robinson, Benjamin Sandy, Clevy Selengbe, Phil Smith, Lacey Tatosky, Lauren Trudeau, and Kayla Tuttle*

Twenty eight psychology and business psychology majors will present their original, semester-long research projects. Students' projects include the following topics: the role of personality in computer gaming choices and behavior; how therapy dogs reduce stress on children during legal testimony; how religious affiliation impacts judgments of clergy embezzlement; students' perceptions of driving under the influence; how attractiveness and occupational prestige influences perceptions of character; and the role of gender in perceptions of sexual and emotional infidelity. Join us to learn about these and many other intriguing topics related to human emotion, cognition, and behavior. (*Faculty sponsor: Karol Maybury and Steve Quackenbush*)

1:00 - 3:40

#### **Research Methods in Psychology (continued)**

Continuation of the morning session for psychology and business psychology.

## Venue 5, CR 123

### *Political Science*

9:00 - 9:20

#### **Living Through Hell: How Maine Can Develop Ways to Assist Veterans and Their Families Prevent and Recover From Domestic Violence**

*Dovey Balsam*

Domestic violence has been recognized as a serious issue despite the continual slow progress in enacting appropriate legislation to deal with it. Due to some of the unique challenges created by war in Afghanistan

and Iraq, veteran families are finding it harder to cope with domestic violence. The new attention paid to post-traumatic stress disorder, traumatic brain injuries, and other physical, mental and social stressors within military culture make it harder for people to cope in the civilian world. Veterans have special needs that must be addressed when dealing with abusive behavior at home. This project examines how as a state with a significant rural veteran population and substantial problems with domestic violence, Maine is in a unique position to help confront these issues. *(Faculty sponsor: James Melcher)*

9:20 - 9:40

### **Is the Public Always Right: A Look into the Relationship between Representatives and their Constituents**

*Nicholas Trent*

This presentation will be discussing the relationship between the elected officials in the United States government and their constituents and exactly how much interplay there is between both sides. There is a significant information deficit on behalf of the constituents, who still expect the elected official from their region to enforce their public will in Washington, as well as a disconnect between public knowledge of a policy and actual facts and information at the disposal of the representative. Therefore, there needs to be a balance between public will and representative initiative in Washington to handle right this relationship. *(Faculty sponsor: James Melcher)*

9:40 - 10:00

### **Inaugural Addresses and the American Dream**

*Matthew Allen*

This Capstone presentation looks at the philosophy of the American Dream in the context of inaugural addresses. The two main areas of focus under the topic of the American Dream will be economic inequality and social inequality. The research will branch off of the inaugural addresses. Full analysis of the inaugural addresses will state how different presidents viewed the American Dream and what happened in each term. *(Faculty sponsor: James Melcher)*

10:00 - 10:20

### **Constitutional Amendment To Allow For National Initiatives And Referendums**

*Joseph Burton*

Since the Progressive Era of the early 1900s the United States has seen a rise in the use of initiatives and referendums at the state level. In modern times many groups have proposed amending the Constitution to allow initiatives and referendums at the national level as well. If this amendment is adopted the country could face issues such as tyranny of the majority, uninformed decisions and conflicting law. While the voice of the

citizens is important, this change would undermine the basic structure of the constitutional republic set up by the founding fathers. *(Faculty sponsor: James Melcher)*

10:20 - 10:30

## **Break**

Please note that this break is only 10 minutes

10:30 - 12:00

## **Political Science Capstone Projects**

*Matthew Allen, Dovey Balsam, Katherine Desfosses, John MacVane, Nicholas Trent, Stephanie Vincent, Hannah Whitaker, and Margaret Drennan*

This panel is a series of presentations of the capstone research projects conducted by graduating Political Science majors this spring. Matthew Allen, TBA, Dovey Baslam, TBA, Katherine Des Fosses, "Environmental Legislation Across State and Provincial Borders: The Impact of Legislative Structure on Effective Environmental Policy", John MacVane, "Principles of Social Justice: Examining an Egalitarian Perspective," Nicholas Trent, "Is the Public Always Right? A Look into the Relationship Between Representatives and their Constituents," Stephanie Vincent, "A Climate Change of Scenery: Environment and Migration in China," Hannah Whitaker, TBA *(Faculty sponsor: Linda Beck)*

12:00 - 1:00

## **Lunch Break**

1:00 - 4:00

## **Social Accountability Internship Projects**

*Daniel Austin, Tyler Cota, Margaret Drennan, Matthew George, Myles Labonte, Jessica Leighton, Kevin Lind, John MacVane, Brooke Nichols, Stephanie Vincent, and Hannah Whitaker*

Social accountability, in which public officials are held accountable by civil society actors for formulation and implementation of public policy, is a cornerstone of democratic politics. Having interned for various non-profit and community-based organizations around the state, these students will present a summary of their service-learning projects in social accountability. *(Faculty sponsor: Linda Beck)*

# Venue 6, The Landing, Student Center

*Readings, Literature*

9:00 - 10:00

## **Readings by Students in Advanced Fiction**

*Shannon Butler, Nicole Byrne, Devany Chaise-Greenwood, Caroline Estrin-Grele, Alyssa Mahoney, Kellsey Metzger, Alison Osborne, and Cadyn Wilson*

A group of students from the two sections of English 310, Advanced Fiction, will read excerpts from their short fiction. *(Faculty sponsor: Patricia O'Donnell)*

10:00 - 11:00

## **Life Stories from 'Writers on Writing'**

*Ibrahim Achech, Victoria Alagna, Britt Couturier, Kadir Hassan, Abdi 'Noodles' Hussein, Erica Lundgren, David McGoldrick, Tina McCabe, Forest Mitchell, and Dahir Muktar*

Surprise yourself: Come and listen to the readings of short narrative writings by student writers in 'Writers on Writing', and discover yourself as you hear their stories. *(Faculty sponsor: Elizabeth Cooke)*

11:00 - 12:00

## **Readings by Young Adult Fiction Novelists**

*Natalia Asis, Sierra Bonney, Jennifer Caron, Caroline Estrin-Grele, Ian Garcia-Grant, Katie Marshall, and Ashley Smith*

Come listen to student writers of Young Adult novels as they read scenes from their works in progress. Their characters will carry you away, into their worlds for a fantastical, adventuresome, and heartfelt few moments of their life stories. *(Faculty sponsor: Elizabeth Cooke)*

12:00 - 1:00

## **Lunch Break**

1:00 - 2:20

## **Frontier Moments in American Texts**

*Students from ENG 463, Colonial Americas*

This panel aims to explore how American cultural artifacts from the colonial period to the present day, including travel accounts, dictionaries, or Science Fiction movies, have approached the idea of contact and encounter. Relying on Annette Kolodny's concept of frontier moments, the papers in this panel will uncover

moments in American texts that document the collision of distinct cultures and the subsequent creation of new identities, voices, and geographical spaces. *(Faculty sponsor: Sabine Klein)*

2:20 - 3:10

### **Parodies of Jane Austen and Her Works**

*Lauren Breton, Caroline Estrin-Grele, Megan Millette, Alyssa Wadsworth, and other students from English 477*

Jane Austen is known for her feisty female protagonists and traditional marriage plots that appear in her early 19th-century novels of manners. However, Austen wrote parodies of histories and gothic novels long before she tried her hand at such milestone works of literature as Pride and Prejudice and Emma. Austen's playful use of parody inspired students to create their own parodies of the author and her works, The History of England and Northanger Abbey, in Misty Krueger's spring 2013 English 477. This panel will explore how a few students from the senior seminar devised their parodies, and it will share samples of these student projects.

*(Faculty sponsor: Misty Krueger)*

3:30 - 4:00

### **International Programs and Creative Writing Reception**

Journal Launch and Study abroad information. Light refreshments will be served. Sponsored by the Office of International and Exchange Programs.

## **Venue 7, Ricker 217**

*International and Global Studies, Geography*

9:00 - 9:20

### **Sweatshops Positive Impact on Gender Empowerment in China**

*Chiaping Wen*

Despite popular beliefs of "sweatshops" being exploitative and a form of human rights violation, this paper goes to exam the extreme opposites of this view by proving that sweatshops in China are positive forms of economic, and gender empowerment. These so-called sweatshops have in fact been supporting and empowering women across China for decades although the positive impacts of sweatshop labor are just beginning to come into light. Therefore, to oppose or call for the ending of sweatshops in China would be hindering gender empowerment. Despite the adverse working conditions, women working in these sweatshops are benefiting from their employment both economically and socially. *(Faculty sponsor: Linda Beck)*

9:20 - 9:40

## **Should Mandarin Become a More Prominent Language in the United States?**

*Andrea Geisler*

As China becomes a Superpower, should more Americans learn Chinese? Should Chinese be taught in more schools in the US? Is Chinese so hard to learn, and could Chinese replace English as the world's most popular business language? I will also show the importance of learning a second language for enhanced global communication as well as cultural understanding. *(Faculty sponsor: Linda Beck)*

9:40 - 10:00

## **Is China the New Colonial Power? An Analysis of the Current and Potential Future of Sino-Rwandan Relations**

*Brittney Norton*

Based on China's relationship with African countries in the past, is China likely to become a large investor in Rwanda and if so is it in Rwanda's best interest to pursue stronger relations with China? This paper will assess the affects Chinese involvement had on other African countries to determine if Chinese investment will support Rwanda's goal of becoming a middle-income country while still working towards becoming a more democratic country. *(Faculty sponsor: Linda Beck)*

10:00 - 10:20

## **The Rocky Road to Brussels: EU Conditionality and the Europeanization of Croatian Political Culture**

*Kyle Norweg*

Croatia received European Union (EU) candidacy status in 2005, with membership contingent upon strict measures that may have repelled the former war-torn communist state. Despite the accession conditions imposed upon Croatia, political culture in the Western Balkan state has made positive transformations that will allow future EU membership. *(Faculty sponsor: Scott Erb)*

10:20 - 10:40

## **Break**

10:40 - 11:00

## **Terrorism in the Basque Country: How Violent Actions Carried Out by the Terrorist Group ETA Have Delegitimized the Basque Movement for Independence.**

*Emily Lindsay*

My paper will focus on the historical impact of the ETA on the Basque movement toward independence. It will start with a history of the Basque Country and the resulting nationalism, which led to the development of ETA and the subsequent violence carried out by the group. I will then analyze the Basque people's actions toward independence and the impact of ETA on these actions. I will look specifically at the Spanish and international interpretation of the Basque Country as a legitimate independent state and the ways in which ETAs actions have impacted those opinions. *(Faculty sponsor: Scott Erb)*

11:00 - 11:20

## **Water and Sanitation in the Andean Region**

*Aimee St. Germain*

Water is an essential part of life; yet lack of access to safe drinking water still effects 11% of the population worldwide. Problems include diseases and many hours dedicated daily to the collection of water, often from unsanitary sources. Non-governmental domestic and international organizations wish to help. Environmental justice, management of institutions, and local rights should be considered when implementing new strategies. This is a study of how non-governmental organizations and communities work together to provide better distribution of safe drinking water in rural, underdeveloped parts of the Andean Region. *(Faculty sponsor: Brad Dearden)*

11:20 - 11:40

## **Perceptions of Genetically Modified Organisms (GMOs) in France**

*Elizabeth Dunn*

Genetic modification refers to the modifying, transferring or creating of genes in order to yield organisms with enhanced characteristics. There is much debate surrounding the use of this technology, especially in regards to producing and consuming GM food. In many countries, the introduction of products containing GMOs has led to organized opposition. This anti-GMO activism has had a prominent presence in the European Union and has led to the implementation of strict GMO regulations. This research explores the perception of the risks and benefits of GM products in France so as to explain the response to GMOs since their introduction. *(Faculty sponsor: Brad Dearden)*

11:40 - 12:00

## **Vino Argentino Bebida Nacional: The Impact of Wine in Argentina**

*Christopher Angotti*

Since the introduction of viticulture (grape production) during the Spanish colonization of the Americas and the establishment of the first vineyard by Juan Cedr?n in 1556, wine has had a large impact on the country of Argentina (currently the 5th largest producer of wine worldwide). This presentation will include a brief but concise history of the wine industry in Argentina as well as an analysis of its economic growth and the impact that it has had on the development of the country. *(Faculty sponsor: Marisela Funes)*

12:00 - 1:00

## **Lunch Break**

1:00 - 1:20

## **Argentina and the Culture of la Manifestacion**

*Jacob Gomberg*

Civic engagement is crucial to the survival of democracy, and has established itself in the political culture of Argentina in the form of la manifestacion, or mass-protest. Utilizing different forms of media such as videos, recent national newspapers, books, interviews, as well as personal experience living and studying in Argentina for a semester, this presentation will show how the political culture of 'la manifestacion' took hold, and why it has retained considerable cultural importance through generations of Argentines. Through this analysis I hope to demonstrate Latin America's importance as a laboratory for the growth of democracy. *(Faculty sponsor: Marisela Funes)*

1:20 - 1:40

## **Public Art and Political Propaganda**

*Jeremy Vroom*

Displays of art through different mediums have come to define parts our everyday lives whether we notice it or not. It may be as simple as graffiti on a street corner, a photograph along with a news article, an advertisement on a billboard, or a public installation. By defining art, both political and public, and diving deeper into mediums such as photojournalism, street art, and conceptual activism from Chinese artist Ai Weiwei, the relationship between different forms of government and artists of different mediums is discovered, as well as the impact artists are able to have on society. *(Faculty sponsor: Brad Dearden)*

1:40 - 2:00

### **Cost/Benefit Analysis of Recycling at UMF**

*Joseph Dignam*

This presentation will cover research on the costs of recycling on the University of Maine at Farmington campus. This cost is compared to the costs of solid waste disposal for the campus, and arrives at a cost/benefit analysis for UMF recycling. This analysis also includes opinions on the moral goodness of recycling, given the current and potential future costs of the recycling program. *(Faculty sponsor: Brad Dearden)*

2:00 - 2:20

### **Investigating Freshwater Conservation in Western Maine: Perception versus Reality.**

*Tyler Case*

This research focuses on stewardship practices along the shoreline communities around Western Maine ponds. To do this, individuals from 6 different bodies of water will be interviewed regarding their perceptions of local water clarity and quality. Half of the sample set will be from bodies of water that have "lake associations" as institutions in place to conserve freshwater resources; the other half will have no identifiable organization in place. Ultimately, the question is to see if such organizations seem to positively impact local water quality by comparing people's perceptions to actual data collected to monitor the quality of local waters. *(Faculty sponsor: Brad Dearden)*

2:20 - 2:40

### **Break**

2:40 - 3:00

### **Winter Weather and Design: Degrading Pedestrian Behavior and Safety, Downtown Farmington, Maine - A Photographic Critique**

*Jediah Scott*

Given the tight cluster of small-businesses located within the historic district of Downtown Farmington, Maine, a strong presence of pedestrian activity is paramount to the area's economic integrity. But, what happens when perceptions of safety and adequacy within the pedestrian infrastructure begin to degrade due to competing design elements, lack of infrastructure, and seasonal obstructions? In order to provide key insight to this question, observational data and personal reflections from Farmington pedestrians will be examined. Photography will also be utilized to further illustrate obstructive design elements and the impacts of snow and snow removal within the pedestrian landscape. *(Faculty sponsor: Brad Dearden)*

3:00 - 3:20

### **A study of Southern Coastal Maine Communities' Level of Awareness, Preparedness, and Management Strategies for Combating the Emerald Ash Borer**

*Ty Hughes*

With modeled movement of the Emerald Ash Borer, *Agrilus planipennis*, into the Northeast region of the United States, there is potential for the vast destruction to White and Green Ash tree populations of Maine in a few years time. The EAB is now in Western Massachusetts and the Québec province of Canada, suggesting the invasive beetle will soon cross Maine's borders killing all Ash populations as exhibited in the Midwest. This research seeks to assess several southern coastal Maine communities' level of awareness, preparedness, and management strategies for battling the Emerald Ash Borer in the near future. *(Faculty sponsor: Brad Dearden)*

3:20 - 3:40

### **A Community Comparison: Areas of recreation in Farmington Maine vs. National Standards**

*Michael Lawson*

Since the 1960s significant organizations such as the National Recreation and Parks Association have developed "recreational standards" which suggest, based on population, what sort of and how many areas recreation opportunities and facilities ought to be available to the public in any given municipality (e.g. parks, tennis courts, etc.). This research study seeks to conduct a Community Comparison which will evaluate Farmington, Maine and its areas of opportunity for recreation to the national standards of the NRPA. This research also seeks to gauge the Farmington community's perception on whether they feel their town is adequately equipped with recreational opportunities. *(Faculty sponsor: Brad Dearden)*

3:40 - 4:00

### **Increasing Lift Ticket Prices at Sugarloaf and the Impacts on Maine Skiers**

*Keegan Ballard*

Winter recreation activities can generate substantial economic activity, benefiting both surrounding businesses and communities. Ski mountains have capitalized on their physical geography; many larger mountains have developed into their own tourist based communities, and as a result prices to ski have increased. Skiing is a Maine tradition and excellent source of exercise. This research therefore targets this issue in the case of Sugarloaf Mountain, in Carrabasset Valley, and addresses the following question: Have increased lift ticket prices over the past 20 years at Sugarloaf negatively impacted the willingness and ability of Maine residents to access it? *(Faculty sponsor: Brad Dearden)*

# Venue 8, Art Gallery and Emery Arts Center

## *Senior Artists*

*The senior art presentation session will begin at 1:00 in the UMF Art Gallery. At around 1:40 it will move to the Emery Community Arts Center and will resume at 1:50.*

1:00 - 2:30

### **Senior Artists Talks: Amalgamate**

*John Harlow, Rebecca Grzesik, Benjamin Frost*

Over the past two semesters, the senior art students have engaged, through artistic practice, the complexities of creating work in a contemporary culture. This group uses a variety of mediums to immerse the audience into dialogues as diverse as rural poverty, nostalgia, cultural memory and crisis, the sacred space, the mundane, internal conflicts, existential angst, cinematography, fiction and fantasy. Students will address the ideas present in their work and answer questions from the audience. The talks will begin with the works displayed in the UMF gallery and move over to address the works in the Emery Community Arts Center .

*(Faculty sponsor: Katrazyna Randall)*

### **Symposium Abstract**

*John Harlow*

My work is an artistic investigation in the causes and effects of the socio-economic conditions of rural poverty. I document the people, places, sights and sounds that make up the rural environment I've grown up in, attempting to bridge the artistic dialogue between the privileged and underprivileged in rural Maine. My work remains unfinished until it has been delivered, back into the community in the form of video installation. While my video work often explores rural place, I choose to project videos out in the world as a way to permeate the environment and community in real time; a means of becoming entirely accessible. In doing so, anybody who chooses to, can witness and interact with an artistic conversation that is completely a reflection of the values their own community has established. *(Faculty sponsor: Katrazyna Randall)*

### **Crawling Out of the Box**

*Alexandra Portela*

Our life is interspersed with the narratives. In my work I use multi-media installation to create spaces where the viewer can enter a world separate from their own in order to cross the line between fiction and reality. The viewer has the opportunity to sit down, flip through a book, discover letters, find an old postcard, thumb through collections of images, or even examine the forgotten remains of creatures long deceased. In essence,

I hope to create a narrative and sense of discovery that is different for each viewer because it will be unfolded through their own choices and interactions. *(Faculty sponsor: Dawn Nye)*

## **Finding Authenticity**

*Joseph Knight*

My current work is focused on romanticized remembrances of nostalgia and the way objects relate and convey personal and cultural history. I am interested in the concept of collections and souvenirs; the division between their personal and the non-personal connections and the constructed memories they hold. I take these objects and juxtapose them with fantastical and whimsical elements to explore the complex nature of nostalgia and why we as people are so drawn to them. My work seeks to identify both a social and personal meaning within the context of the objects explored. *(Faculty sponsor: Dawn Nye)*

## **Inner Liberties**

*Jonathan Knight*

In my work I investigate internal conflicts and how they inform behavior. I use the medium of film to create heightened emotional moments of internal reflection and recollection. The work is focused on creating surreal experiences in which the audience is guided into a visceral space to reflect upon their own emotional/psychological experiences. The films are created using familiar cinematic language, metaphor, abstraction, and non-linearity to explore the hypersensitive and psychological environments. *(Faculty sponsor: Sarah Maline)*

# **Venue 8, Ricker 114**

*Computer Science*

9:00 - 12:00

## **Database Design**

*Sean Berce, Christopher Bond, Ryan Bretschneider, Corbin Briske, Tyler Buck, Rylan Cates, Brenton Dupee, Gus Field, Devin Forsman, Alexander Fuller, Jenell Green, Amy Hatch, Sarah Leopold, Matthew Mains, Leslie Mercier, Joseph Messerman, and Kirk Wilkins*

Students will be discussing their term projects dealing with a database they designed as well as illustrating a series of queries they developed. Their choice of graphics front end that they designed will also be presented. *(Faculty sponsor: Gail Lange)*

# Venue 9, Dearborn Gym

## *Poster Session*

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 1:00 and 2:00.

poster #1

### **One White, One Red**

*Kelsey E. Moore*

Ms. Moore will present three illustrated, hand-bound memoirs which represent her childhood, adolescence, and young adulthood. Exploring the creation of female identity and the coming-of-age experience, the artist has drawn upon her own diaries and the fairy tales of her childhood as inspiration for both her texts and imagery. (*Faculty sponsor: Gretchen Legler*)

poster #2

### **Global Business Strategy: A Strategic Perspective Employing Comparative Analysis**

*Natasha Varney*

As businesses become more globalized, variations within business environments create scenarios where a business can succeed in one country, but by the same methods, fail in another. There are many factors that can be involved, causing a previously standardized "one-size-fits-all" company strategy to no longer succeed and accomplish its goals and objectives. The main objective of this study is to assess the conditions and to develop the best international strategy for use in a variety of business environments, both nationally and culturally. (*Faculty sponsor: Shahrokh Dalpour*)

poster #3

### **Environmental Health Electronic Media Presentations**

*Joseph Dignam, Kelci O'Neill, Michael Kelly, Andrew Dickey, Ariel Nichols, Jediah Scott, Stephanie Schulman, Kelsey Arsenault, Allison Berry, Matthew Clark, Michael Colella, Rebecca Cook, Brady Croteau, Allison Hodge, Devon Jones, Chelsea Lear-ward, Chels*

As a culminating project for Environmental Health, students are required to present research findings around a topic related to environment and human health via electronic media (e.g. website, blog.) Students will showcase their research as well as their ability to effectively disseminate health information for the purpose of health promotion or disease prevention. Being well versed in health information technology is a critical skill

for health professionals. Students have been granted freedom in topic selection and in many cases have carried forward research from previous courses or will have the opportunity to further their research in future coursework. *(Faculty sponsor: Denise Boothby)*

poster #4

### **Research Methods in Psychology**

*Courtney Bolen, Mary (Ellie) Burkhart Polk, Seth Clewley, Christina Cook, Abigail Cyr, Josh Davis, Kaitlyn Dickinson, Chelsea LeBlanc, Blake McElman, Cassidy Munro, Jasmine Portales, Hannah Roy, Ricki Sinclair, Janis Stitt, Julia Tichy-Dupuis, Maurice D. White*

Sixteen Psychology and Business Psychology majors will present their original, semester-long research projects. Students' projects include the following topics: the role of personality in computer gaming choices and behavior; how therapy dogs reduce stress on children during legal testimony; how religious affiliation impacts judgments of clergy embezzlement; students' perceptions of driving under the influence; how attractiveness and occupational prestige influences perceptions of character; and the role of gender in perceptions of sexual and emotional infidelity. Join us to learn about these and many other intriguing topics related to human emotion, cognition, and behavior. *(Faculty sponsor: Karol Maybury and Steve Quackenbush)*

poster #5

### **Energy Footprints**

*Tyler Cota and Emily Littlefield*

Earth's climate system, out of energy balance by  $+0.6 \text{ W/m}^2$  (total  $3 \times 10^{14} \text{ W}$ ) due to still increasing carbon emissions, is storing much of the excess energy in the surface ocean. In summer 2012, Arctic sea ice shrank to a record low and the entire top of the Greenland Ice Sheet experienced melting. In order to better understand per capita  $\text{CO}_2$  emissions, we will present data on current patterns of student energy use and suggest where efforts to reduce  $\text{CO}_2$ -emitting energy conversions will have the greatest impact. *(Faculty sponsor: Douglas Reusch)*

poster #6

### **Action Research Projects Conducted in the PIWI-Inspired Playgroup**

*Tasha Bayley, Joc Caldwell, Christian Casault, Brittany Hoffman, and Erica Paul*

UMF student facilitators in the PIWI-Inspired playgroup use an ongoing reflective thinking and action research process. Student facilitators support families attending their playgroups by gathering and examining data, then setting instructional goals and objectives to plan, implement, and evaluate the weekly sessions. In addition to using this process for the weekly sessions organized around Developmental Observation Topics, they have designed action research projects to consider their efforts and effectiveness in addressing issues

stemming from parent-identified issues. In this poster session, five playgroup facilitators will discuss their research questions and the action research they have conducted across the semester. (*Faculty sponsor: Dolores Appl*)

poster #7

### **Alternative Vehicles, Alternative Energy**

*students of PHY 110, Physics of Cars*

With alternative vehicles like the Chevrolet Volt, the Nissan Leaf, and the plug-in Toyota Prius now on the market and on the road, it's a good time to look at the technology behind cars and energy generation. Groups of students have carried out term projects on alternative fuels, alternative vehicles, and alternative modes of providing the electrical energy that might power those alternative vehicles; these groups will present their projects in poster form. Topics include electric vehicles, hybrid-electric vehicles, hydrogen fuel cell vehicles, tidal and wave power, biodiesel, industrial-scale wind power, passive solar energy, nuclear fission, nuclear fusion, and the smart grid. (*Faculty sponsor: Christopher Magri*)

poster #8

### **Influence of Lake and Watershed Size on Water Quality in Seven Lakes and Ponds in the Rangeley Region**

*Tyler Case*

This study focuses on measures of water quality and thermal regimes of lakes relative to lake morphology and watershed characteristics. Measurements of the watersheds of ten lakes and great ponds in the Rangeley Lakes Region were used to better understand the current state of water resources in a historically significant area. Linear regression techniques are used to analyze the importance of physiographic factors relative to overall water quality. Knowledge accumulated in research such as this facilitates effective action from policy makers enforcing sustainability initiatives that protect water resources leading to a benefit for human development and biological diversity. (*Faculty sponsor: Daniel Buckley*)

poster #9

### **Heat Producing Elements in Maine Granitic Rocks.**

*Murphy Doughty and Dylan Moreau*

Granitic rocks in western Maine may contain the heat producing elements U, Th, and K. These radioactive elements produce heat within the granite as they decay. The extent to which these granites contain concentrations of these elements determines the magnitude of the heat produced. Using the UMF X-Ray Fluorescence Spectrometer we will examine the concentrations of U, Th, and K within each source rock. The application of this analysis will be useful for determining possible source rocks for geothermal heat and will be

added to the existing database of heat producing granites of the Maine State Geological Survey. (*Faculty sponsor: David Gibson*)

poster #10

### **Geochemistry of the Mafic Dikes of the Schoodic Peninsula**

*Sarah Lavorgna and Sean Slattery*

Numerous, thin basaltic dikes outcrop in continuous exposures along the Schoodic peninsula. They are of unknown age, but could be related to either the central Maine Devonian magmatism or to the younger intrusions associated with the opening of the Atlantic in the Mesozoic. Utilizing XRF spectrometry we will analyze the major and trace element composition of the swarm and compare it to samples of known age in order to investigate the origin of the dikes. (*Faculty sponsor: David Gibson*)

poster #11

### **Geochemistry Investigation of Diabase Dikes, Grindstone Neck, Schoodic Peninsula, Maine**

*Carlee Knox and Ruby Rockwell*

Several large (>5m wide) diabase dikes of unknown age intrude the Gouldsboro granite at Grindstone Neck, Schoodic Peninsula, Maine. The dikes exhibit chilled margins on the edges of the intrusion but rapidly grade to microgabbro textures. Some are also cross-cut by thin dikes of basaltic composition. Utilizing X-Ray Fluorescence spectrometry we will determine the major, minor and trace element composition of the diabase dikes to elucidate their origin and tectonic setting. (*Faculty sponsor: David Gibson*)

poster #12

### **Geochemistry of Granitic Rocks from the 1:100,000 Augusta Bedrock Map**

*Cassandra Greco and Kristina Madjerac*

The Hallowell, Togus, and Three Mile Pond plutons outcrop are in the Augusta area, south-central Maine. They are Devonian in age and cut the NE-SW regional trend of the bedrock and are therefore post tectonic. They are composed of granite and granodiorite, and are non-foliated. We will be using geochemical analysis from the UMF XRF lab to determine their composition, possible sources and tectonic setting. (*Faculty sponsor: David Gibson*)

poster #13

### **Comparing Restoration and Gene Expression of Deteriorated Retinas using Lutein and Zeaxanthin After Inducing High Levels of Hyperglycemia in Danio Rerio**

*Dana Fioretti and Matthew Lamare*

The poster will cover the research to date. Overall objective of the project was to assess the blood glucose levels of Danio rerio after being exposed to a 2% glucose concentrated environment for 30 days, assess the vision threshold of the zebrafish after attempting to reach hyperglycemic blood glucose levels and lastly to restore damaged retinas of the zebrafish by inoculating them with Lutein and Zeaxanthin and to assess the gene expression of the deteriorated and regenerated retinas. *(Faculty sponsor: Jean Doty)*

poster #14

### **Carcinogenic Methylation of the genome of Drosophila melongaster**

*Jacob Taylor*

Recently, studies have shown that cancer may be caused by methylations on genes that code for tumor repression. I observed the effects of exposure to carcinogens (smoke and alcohol) on the genome and the passage of this predisposition to cancer to their progeny. *(Faculty sponsor: Jean Doty)*

poster #15

### **Beneath the Ice: Thermal and Chemical Dynamics of Ice-out**

*Megan Bott, Casandra Greco, Ty Hughes, Alexa Kusmik, and Cree Rousseau*

The onset of cold temperatures in late fall begins a season of quiescence and stability beneath the ice cover of lakes and ponds in Maine. As the ice thins in the spring and meltwater moves into the pond, changes in lake temperature and dissolved oxygen precede ice-out. This project focuses on water temperature and dissolved oxygen data collected beneath the ice of Staples Pond (Temple, ME) during winter and early spring 2013. Dissolved oxygen (DO) conditions are important controls on suitability of a pond for cold water gamefish, and we will focus on characterizing DO trends both pre- and post-ice-out. *(Faculty sponsor: Julia Daly)*

poster #16

### **Thick Ice / Thin Ice: Lake Ice-Out Patterns and Historic Climate**

*Murphy Doughty, Laura Maust, Alyssa Renzi, Cree Rousseau, and Brian Scholten*

The timing of ice-out is a familiar proxy for the beginning of spring in Maine. Long-term historic records for several of Maine's large lakes show that ice-out is about two weeks earlier than a century ago. This project looks at the links between ice-out timing, air temperature, and snowpack at both large lakes and small high elevation ponds in western Maine. Special attention will be given to data from 2009-13, with an emphasis on

understanding the conditions that led to unusually early ice-out dates in 2010 and 2012. (*Faculty sponsor: Julia Daly*)

poster #17

### **Impact of Atypical Air Temperatures on Development and Persistence of Winter Stratification and Ice Cover on Subalpine Lakes, Western Maine**

*Murphy Doughty and Sarah Lavorgna*

Unseasonably warm air temperatures experienced in the northeast during mid-March 2012 resulted in a truncated seasonal ice cover of many large Maine lakes. Since 2007, the Maine Mountain Ponds project has been monitoring temperature changes sub-hourly in high elevation ponds. Based on high-resolution temperature data recovered from over a dozen high elevation lakes in western Maine, we interpret that late ice formation in fall 2011 and early ice-out in spring 2012 were a coherent regional response for these sites. Summer recovery of data revealed that unseasonably warm temperatures in March 2012 caused premature ice out and destratification. (*Faculty sponsor: Julia Daly*)

poster #18

### **Student Driven and Directed Fossil Fuel Divestment Movement**

*Murphy Doughty and Ruby Rockwell*

The vast majority of climate scientists agree that humans are influencing the global climate at an unprecedented rate. Civilization's addiction to fossil fuels is driving such rapid changes that geologists have named a new geologic era. A multi-national student driven movement has materialized on college and university campuses urging administrators to remove investments from the fossil fuel corporations possessing the bulk of fossil fuel reserves. By reallocating the UMaine Systems investments into more socially responsible portfolios we have the opportunity to lead this student effort for social, behavioral, and economic change here at UMF. Read, Respond, and React. (*Faculty sponsor: Julia Daly*)

poster #19

### **Investigation of Cathodic Stripping Voltammetry for the Speciation of Arsenic in Water**

*Heather Budzko and Rebecca Capowski*

Contamination of groundwater with arsenic (As), a naturally occurring toxic substance, is a major health risk through contamination of drinking water supplies. In order to study arsenic distribution in well water, a sensitive analytical method is needed for its measurement which can differentiate between the two oxidation states, As(III) and As(V). One such method is Differential Pulse Cathodic Stripping Voltammetry (DPCSV). This work will evaluate the DPCSV method for its potential application to arsenic speciation testing of local well water samples. (*Faculty sponsor: Martin Morocco*)

poster #20

## **Comparison of PCR protocols for barcoding new species of marine polychaete worms (Phylum Annelida; Families Serpulidae, Chrysopetalidae and Chaetopteridae)**

*Kelsey Ottmann and Jesse Williams*

Molecular barcoding of polychaetes is an essential tool for taxonomists describing new species and revising annelid evolutionary phylogenies. In this study, several different PCR protocols for four primer sets were applied to determine the best methodology for extracting and amplifying DNA from 6 polychaete species representing three different families (Chaetopteridae, Chrysopetalidae and Serpulidae), which were collected in the Virgin Islands National Park, St. John, USVI. Initial results of one COI-PCR protocol indicated successful amplification of DNA extracted from the new Serpulidae genus, as well as from the two new species of the Chaetopteridae and Chrysopetalidae families. These results provide a solid base on which to refine protocol techniques for continued DNA barcoding of new polychaete species. *(Faculty sponsor: Nancy Prentiss)*

poster #21

## **Comparisons of Butterfly Fauna Associated with High and Low Altitude Biophysical Regions in Maine**

*Natalie Dumont and Emily Littlefield*

High altitude biophysical regions often differ dramatically from those at lower altitudes in terms of annual temperature regimes, growing seasons, and plant species diversity. As part of UMF's ongoing National Science Foundation funded sustainability science research project, we assessed butterfly assemblages at 55 sample sites in the Rangeley Lake region of Maine during the summer of 2012. Important correlates of butterfly abundance and diversity in the Rangeley region were determined, and distribution results were compared to similar data collected in 2012 from low altitude biophysical regions in central Maine. We also examined historical data related to butterfly distributions in the two regions to determine potential changes in the geographic ranges of butterflies. Differences in butterfly distributions were observed both between biophysical regions, as well as between present day and historical records within each region. We suggest that observed differences in present day butterfly species distributions may be related to variations in host plant and/or nectar plant distributions within each biophysical region. Historical differences in butterfly distributions are probably related to changes in butterfly geographic ranges associated with changing climate and/or land use patterns. *(Faculty sponsor: Ronald Butler)*

## **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.*

*Michael D. Wilson Symposium Day is made possible by a gift from Michael and Susan Angelides, who remember Michael with gratitude.*

# Index of Student Presenters

Achech, Ibrahim, 28  
Alagna, Victoria, 28  
Allen, Matthew, 26, 27  
Allshouse, Samantha, 20  
Angotti, Christopher, 32  
Arnold, Lauren, 15  
Arsenault, Kelsey, 37  
Asis, Natalia, 28  
Austin, Daniel, 27  
Babin, Ashley, 25  
Ballard, Keegan, 34  
Balsam, Dovey, 25, 27  
Barden, Mariah, 25  
Barrows, Amanda, 18  
Bartlett, Chelsea, 5, 9, 13, 19  
Bayley, Tasha, 38  
Berce, Sean, 36  
Bernhardt, Nicole, 21  
Berry, Allison, 37  
Black, Adam, 4, 12  
Blow, Michaela, 7  
Boguhn, Keifer, 22  
Bolen, Courtney, 38  
Bond, Christopher, 36  
Bonney, Christa, 21  
Bonney, Sierra, 28  
Bott, Megan, 41  
Breton, Lauren, 29  
Bretschneider, Ryan, 36  
Briske, Corbin, 36  
Browning-Bohannah, Chelsea, 7  
Buck, Tyler, 36  
Budzko, Heather, 23, 42  
Bunch, Sarah, 24  
Burton, Joseph, 26  
Butler, Shannon, 28  
Buys, John, 9, 18, 19  
Byrne, Nicole, 28  
Caldwell, Joc, 38  
Camic, Nicholas, 21, 24  
Capowski, Rebecca, 42  
Caron, Jennifer, 28  
Carpenter, Alexandra, 25  
Casault, Christian, 38  
Case, Tyler, 33, 39  
Cates, Rylan, 36  
Cherkis, Brewster, 20  
Christensen, Melaine, 18  
Churchill, Haley, 20, 24  
Clark, Garth, 25  
Clark, Matthew, 37  
Clark, Nicole, 9, 19  
Clarrage, Aimee, 18  
Clewley, Seth, 38  
Colella, Michael, 37  
Cook, Christina, 38  
Cook, Rebecca, 37  
Cota, Tyler, 27, 38  
Cothen, Joshua, 15  
Couturier, Britt, 28  
Cowie, Laura, 10  
Croteau, Brady, 37  
Cyr, Abigail, 38  
Cyr, Thomas, 7  
Danforth, Ericka, 25  
Davis, Josh, 38  
Desfosses, Katherine, 27  
Dickey, Andrew, 37  
Dickinson, Kaitlyn, 38  
Dignam, Joseph, 33, 37  
DiSilvestro, Luke, 16  
Doughty, Murphy, 39, 41, 42  
Douglass, Jessica, 21  
Drennan, Margaret, 27  
Dubay, Noelle, 4, 14  
Dufour, Eric, 22  
Dumont, Natalie, 43  
Dunn, Elizabeth, 31  
Dupee, Brenton, 36  
Estrin-Grele, Caroline, 28, 29  
Everett, Hazel, 25  
Eyes, Max, 10  
Farsaci, Catherine, 5, 10  
Field, Gus, 36  
Fioretti, Dana, 24, 41  
Fitzgerald, John, 21  
Fitzgerald, Taylor, 5, 12  
Flowers, Joshua, 25  
Forsman, Devin, 36  
Frost, Benjamin, 35  
Fuller, Alexander, 36  
Garcia-Grant, Ian, 28  
Geisler, Andrea, 30  
George, Matthew, 16, 27  
Gilbert, Abigail, 25  
Giovannini, Marina, 7  
Gomberg, Jacob, 32  
Grannell, Benjamin, 15  
Greco, Casandra, 40, 41  
Green, Jenell, 36  
Greenleaf, Autumn, 25  
Grzesik, Rebecca, 35  
Haigis, Carinne, 9, 19  
Hardy, Meng, 18  
Harlow, John, 5, 35  
Hassan, Kadir, 28  
Hatch, Amy, 36  
Hayes, Austin, 6, 15  
Herdan, Innes, 7  
Herrell, Ethan, 16  
Herrion, Christopher, 17  
Hicks, Madeleine, 7  
Hill, Chelsea, 25  
Hodge, Allison, 37  
Hoffman, Brittany, 38  
Hughes, Ty, 34, 41  
Hussein, Abdi 'Noodles', 28  
Jones, Devon, 37  
Kavanaugh, Hannah, 9, 19  
Keenan, Leanne, 25  
Kelly, Michael, 37  
Kelly, Patrick, 23  
Kendall, Grace, 4, 10  
Klinker, Luke, 22, 24  
Knight, Jonathan, 5, 36  
Knight, Joseph, 5, 36  
Knox, Carlee, 40  
Kusmik, Alexa, 41  
Labonte, Myles, 27  
Laforge, Lindsey, 13  
LaForge, Lindsey, 5, 13  
Lamare, Matthew, 24, 41  
Lapointe, Kevin, 7  
Lavorgna, Sarah, 40, 42  
Lawson, Michael, 34  
Lear-ward, Chelsea, 37  
Leary, Rachael, 22  
Leighton, Jessica, 27  
Leopold, Sarah, 36  
Lepack, Tyler, 25  
Lind, Kevin, 27  
Lindahl, Stuart, 25  
Lindsay, Emily, 31  
Littlefield, Emily, 23, 38, 43  
Lundgren, Erica, 28  
Lunetta, Silas, 5, 14  
MacDonald, Catherine, 9, 19  
MacVane, John, 27  
Madjerac, Kristina, 40  
Mahoney, Alyssa, 28  
Mains, Matthew, 36  
Mallonee, Ansel, 25  
Marshall, Katie, 28  
Maust, Laura, 41  
McCabe, Tina, 28  
McElman, Blake, 38  
McGoldrick, David, 28  
Mercier, Leslie, 36

Messerman, Joseph, 36  
Metzger, Kellsey, 7, 28  
Millette, Megan, 29  
Mitchell, Forest, 28  
Moody, Madison, 17  
Moore, Kelsey E., 4, 37  
Moreau, Dylan, 39  
Morison, Kyle, 15  
Muktar, Dahir, 28  
Munro, Cassidy, 38  
Nelson, Trey Hunter, 25  
Nichols, Ariel, 37  
Nichols, Brooke, 27  
Niles, Lindsay, 7  
Nixon, Jasmine, 24  
Norton, Brittney, 30  
Norweg, Kyle, 30  
O'Neill, Kelci, 37  
Osborne, Alison, 28  
Ottmann, Kelsey, 19, 23, 43  
Packard, Hanna, 22  
Palmatier, Trevor, 22  
Palow, CeCelia, 4, 11  
Parsons, Frank, 15  
Pathania, Kanika, 20  
Patton, Evan, 17  
Paul, Erica, 38  
Peake, Alida, 15

Perkins, Lauren, 25  
Peters, Bre, 25  
Phillips, Jamie, 4, 14  
Pokorny, Sarah, 21  
Polk, Mary (Ellie) Burkhart, 38  
Portales, Jasmine, 38  
Portela, Alexandra, 5, 35  
Quach, Christina, 9, 19  
Qualey, Georgia, 7  
Renzi, Alyssa, 21, 41  
Richard, Macadez, 25  
Robinson, Alexander, 25  
Rockwell, Ruby, 40, 42  
Rousseau, Cree, 41  
Roy, Hannah, 38  
Sandy, Benjamin, 25  
Scholten, Brian, 41  
Schulman, Stephanie, 37  
Scott, Jediah, 33, 37  
Selengbe, Cleve, 25  
Sinclair, Ricki, 38  
Skoog, Dmitriy, 19, 23  
Slattery, Sean, 40  
Small, Cassidy, 6, 15  
Smith, Ashley, 28  
Smith, Mallory, 15  
Smith, Phil, 25  
Soule, Anna, 4, 9

Spahr, Samuel, 22  
St. Germain, Aimee, 31  
St. Pierre, Ashley, 9, 19  
Stevens, Zachary, 7  
Stitt, Janis, 38  
Sylvester, Nathan, 15  
Tatosky, Lacey, 25  
Taylor, Jacob, 22, 41  
Therault, Kelsey, 7  
Thiry, Simone, 13, 18  
Tichy-Dupuis, Julia, 38  
Towle, Matthew, 5, 11  
Trefethen, Kelsea, 18  
Trent, Nicholas, 26, 27  
Trudeau, Lauren, 25  
Tuttle, Kayla, 25  
Varney, Natasha, 5, 37  
Vincent, Stephanie, 27  
Vroom, Jeremy, 32  
Wadsworth, Alyssa, 29  
Wen, Chiaping, 29  
Whitaker, Hannah, 27  
Wilkins, Kirk, 36  
Williams, Jesse, 20, 43  
Wilson, Cadyn, 28  
Wood, Erin, 15

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===== NOTES =====





SYMPOSIUM 2013