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2013 CONFERENCE SCHEDULE

8:00 a.m. – 9:00 a.m.  Registration
9:00 a.m. – 9:25 a.m.  Extended Poster Session 1 – First Half
9:30 a.m. – 10:30 a.m.  Welcome and Keynote
10:35 a.m. – 11:00 a.m. Extended Poster Session 1 – Second Half
10:40 a.m. – 11:25 a.m. Oral Session 1
11:35 a.m. – 12:20 p.m. Poster/Oral Session 2
12:20 p.m. – 1:20 p.m.  Lunch
1:30 p.m. – 2:15 p.m.  Poster/Oral Session 3
2:30 p.m. – 3:15 p.m.  Poster/Oral Session 4
3:30 p.m. – 4:15 p.m.  Poster/Oral Session 5
ACKNOWLEDGEMENTS

We would like to acknowledge all of the faculty members who volunteered their time and expertise to review abstracts and give invaluable guidance to student presenters. We would like to express our great appreciation to the following campus contacts for their time and support of the conference.

Stacy Evans
Berkshire Community College

Jenny Shanahan
Bridgewater State University

Tom Grady
Bristol Community College

Roger Celis
Bunker Hill Community College

Libby Dunphy
Bunker Hill Community College

Delores Bird
Cape Cod Community College

Sara Pollak Levine
Fitchburg State University

Katelyn Christopher
Framingham State University

Judi Greene-Corvee
Greenfield Community College

Kim Hicks
Holyoke Community College

Ellen Shapiro
Massachusetts College of Art and Design

Jason Mazaik
Massachusetts Bay Community College

Susan Edgerton
Massachusetts College of Liberal Arts

Matt Silliman
Massachusetts College of Liberal Arts

Mark Patrick
Massachusetts Maritime Academy

Susan Martelli
Massasoit Community College

David Kalivas
Middlesex Community College

Sheila Murphy
Mount Wachusett Community College

Marcey Marold
North Shore Community College

Ginger Hurajt
Northern Essex Community College

Susan McPherson
Quinsigamond Community College

Rhonda Gray
Roxbury Community College

Joanna Gonsalves
Salem State University

David Winsper
Springfield Technical Community College

Letha Gayle-Brissett
University of Massachusetts Amherst

Joyce Morrissey
University of Massachusetts Boston

Avery Plaw
University of Massachusetts Dartmouth

Jim Canning
University of Massachusetts Lowell

Glen Brewster
Westfield State University

Vanessa Holford Diana
Westfield State University

Josna Rege
Worcester State University

We would also like to give special recognition to Conference Coordinator Letha Gayle-Brissett, Conference Assistant Johanna Brophy, Meredith Lind, Melissa Woglom, Celso Avelar, Zoe Pappenheimer, Mohsin Niyazi, Nate deVelder, Justin Campbell, the Lincoln Campus Center staff, and the faculty, staff, and students at Commonwealth Honors College.
KEYNOTE SPEAKER

Marla R. Miller  Professor of History at UMass Amherst, will speak on “Public History. 2036: The Next 25 Years” – A look at the field of public history as it is practiced today and toward the trends that likely will – or should – shape the field in the next quarter century.

Marla Miller’s primary research interest is U.S. women’s work before industrialization. Her book *The Needle’s Eye: Women and Work in the Age of Revolution* appeared from the University of Massachusetts Press in August 2006, and won the Costume Society of America's Millia Davenport Publication Award for the best book in the field for that year. In 2009 she published an edited collection *Cultivating a Past: Essays in the History of Hadley, Massachusetts*, also with the University of Massachusetts Press. Her most recent book, *Betsy Ross and the Making of America* (Holt, 2010) – a scholarly biography of that much-misunderstood early American craftswoman--was a finalist for the Cundill Prize in History at McGill University (the world’s largest non-fiction historical literature prize), and was named to the Washington Post’s “Best of 2010” list. She is presently completing work on a microhistory of women, work and landscape in Federal Massachusetts, and a short biography of Massachusetts gownmaker Rebecca Dickinson.

As Director of the History department’s Public History program, Dr. Miller also teaches courses in Public History, American Material Culture, and Museum and Historic Site Interpretation, and continues to consult with a wide variety of museums and historic sites. In 2012, she and three co-authors released *Imperiled Promise: The State of History in the National Park Service*, a multi-year study funded by the NPS Chief Historian’s office and hosted by the Organization of American Historians. In 2013, *Imperiled Promise* won the National Council on Public History prize for Excellence in Consulting.
FLOOR PLAN OF CONFERENCE FACILITIES

Lincoln Campus Center, First Floor

Auditorium

Registration Desk

Concourse

Men's Restroom

Women's Restroom

Elevators

TV Lounge

Coat & Poster Check

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### Poster Sessions

**19th Annual Massachusetts Statewide Undergraduate Research Conference**

**Poster Sessions**

**11:35 A.M. - 12:20 P.M.**

**Auditorium (Boards 1A - 48A)**

**Concourse (Boards 49C - 70C)**

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66C | MARY SUE MUGGE | PUBLIC HEALTH | BUNKER HILL COMM COLLEGE | 11:35-12:20 | 509
67C | CHRISTOPHER AMOS | SOCIOLOGY | CAPE COD COMMUNITY COLLEGE | 11:35-12:20 | 520
68C | CHRISTINA WIGGINS | SOCIOLOGY | MOUNT WACHUSETT COMM COLL | 11:35-12:20 | 541
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70C | JESSICA MORSE | WOMEN’S STUDIES | CAPE COD COMMUNITY COLLEGE | 11:35-12:20 | 564

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**BOARD # PRESENETER** | **FIELD OF PRESENTATION** | **CAMPUS** | **TIME** | **ABST #**
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04A | BRADY MURPHY | PUBLIC HEALTH | UMASS AMHERST | 1:30-2:15 | 510
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07A | KAROL PAWLOWSKI | FINANCE | WORCESTER STATE UNIVERSITY | 1:30-2:15 | 353
08A | JAMILA GILLIAM | FINANCE | UMASS BOSTON | 1:30-2:15 | 352
09A | NICHOLAS GUIDI | ENVIRONMENTAL STUDIES | UMASS AMHERST | 1:30-2:15 | 337
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15A | LAUREN HICKEY | BIOLOGY | UMASS DARTMOUTH | 1:30-2:15 | 252
16A | LAURA NOGUE | BIOLOGY | WESTFIELD STATE UNIVERSITY | 1:30-2:15 | 264
17A | MATTHEW DELROSARIO | BIOLOGY | WESTFIELD STATE UNIVERSITY | 1:30-2:15 | 244
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24A | MICHAEL VILKHOVOY | CHEMICAL ENGINEERING | UMASS AMHERST | 1:30-2:15 | 283
25A | EMILY DEWSNAP | COMMUNICATION | FITCHBURG STATE UNIVERSITY | 1:30-2:15 | 312
26A | MARYANNA OVVOC | COMMUNICATION DISORDERS | WORCESTER STATE UNIVERSITY | 1:30-2:15 | 320
28A | HADI AHMED | INTERDISCIPLINARY STUDIES/BDIC | BUNKER HILL COMM COLLEGE | 1:30-2:15 | 369
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30A | WHITNEY CEESEAY | INTERDISCIPLINARY STUDIES/BDIC | BRISTOL COMMUNITY COLLEGE | 1:30-2:15 | 370
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**POSTER SESSION 3: 1:30 P.M. - 2:15 P.M.**

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**POSTER SESSION 4: 2:30 P.M. - 3:15 P.M.**

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**Poster Session 5: 3:30 P.M. - 4:15 P.M.**
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AMERICAN INDIAN STUDIES

1 Reading Room 10:40-11:25 Panel 1
Brittany Collentro
Kathleen Brown-Pérez (Faculty Sponsor)
Department of Anthropology, UMass Amherst
Assimilation through Education: Colonization’s Most Destructive Effect

Modern history is defined by the various interactions between the indigenous cultures and the conquering European settlers. Textbooks describe in detail the bloody wars and massacres between American Indians and the European settlers, but American Indians seemingly disappear from historical accounts after the 19th century. Aboriginal Australian and Indigenous Canadian histories are fragmented, with the darker side of either country’s colonization practices omitted from history. Colonial warfare did not stop once the 19th century dawned; instead, the warfare was fought in the minds and hearts of the indigenous children. In Australia, this consisted of permanent removal of Aboriginal children from their families and placement into white adoptive families or institutions. The suffering of the “Stolen Generations” of Aboriginals has only recently been recognized by the non-Aboriginal public and government. For the American Indians and Indigenous Canadians, this cultural warfare took place mainly in the confines of a classroom. Boarding and residential schools served as places in which the U.S. government could replace Native tribal cultural beliefs and traditions with European cultural values and traditions. The social, political, and scientific ideologies of the time all served to perpetuate and justify the destruction of indigenous family groups and tribes. Yet these cultures demonstrated loyalty to their roots and resisted full assimilation into non-Indigenous culture. The purpose of this paper is to trace how these processes and policies of assimilation through education affected indigenous peoples and what it implies for the future hopes of dismantling these outdated policies and laws.

2 Reading Room 10:40-11:25 Panel 1
Ryan Collins
Kathleen Brown-Pérez (Faculty Sponsor)
Department of Anthropology, UMass Amherst
Reservation Stimulus: A Government Aid to Create Financial Stability

The purpose of this thesis is to research the possibilities for economic stimulus on Indian reservations in the United States. Reservations today are some of the poorest and most desolate places in the country. Some might suggest casinos as reservation stimulus, based on recent well-publicized successes on some reservations, but this could negatively impact the pride and traditions some Indian people have believed in for centuries. Instead, a solution must be crafted that allows for improved education and healthcare on reservations. One important focus is young people that live on the reservations, because they have the opportunity to better themselves and bring more jobs and wealth to the reservation. However, young people too are hindered by the effects of colonization, including obesity, unhealthy drinking water, drug abuse, and increasing high school dropout rates. One potential solution to problems on reservations generally is to encourage children to focus on education and bettering themselves physically and financially and to give them financial and cultural support that will allow them to do this. This would be a long-term solution that could be supplemented by increased governmental funding for the well deserving communities.

3 Reading Room 10:40-11:25 Panel 1
Edward Fallas
Kathleen Brown-Pérez (Faculty Sponsor)
Department of Anthropology, UMass Amherst
Crime in Indian Country: The role of poverty, Alcohol, and Federally enforced assimilation programs

Native Americans remain the poorest of any group living in the U.S. The average unemployment rate on Indian reservations is 50 percent, with some reservations having a rate close to 80 percent. Likewise, deaths from alcohol are up to six times higher on Indian reservations compared with the national average. Most violent crimes such as homicide, sexual abuse, and burglary (around 70 percent) are not even committed by Native Americans. Rather, much interracial violence exists on reservations because of ineffective police and courts specifically caused by governmental policies like Public Law 280. This paper examines the fundamental causes of violent crime in Indian country. Using the primary literature, this thesis will provide solutions to decreasing violent crime in concentrated areas.
4 Reading Room 10:40-11:25 Panel 1
Lauren Keeler
Kathleen Brown-Pérez (Faculty Sponsor)
Department of Anthropology, UMass Amherst
Killing the Indian: American Indian Boarding Schools

This thesis examines how the United States government used education as another form of warfare against American Indians. The United States government used American Indian boarding schools to eradicate the American Indian cultures while being spared the expense of warfare on American Indians. In these boarding schools, American Indians were stripped of their cultures and forced to adapt to the ways of the white men, which were thought of as more civilized. Resources for this paper were taken from scholarly sources that were mostly secondary sources with some integration of primary resources in the form of former student’s diaries. These sources were then used to show how the government attempted to end American Indian cultures through the schooling of young American Indian people. Although the United States government was not successful in completely eradicating American Indian cultures, the effects of American Indian boarding schools forever changed American Indian cultures.

ANTHROPOLOGY

5 Room 809 10:40-11:25 Panel 1
Lindsey Bacon
Chris Bobel (Faculty Sponsor)
Department of Women’s Studies, UMass Boston
Orphaned and Vulnerable Children: The Global, Local and Gendered Dimensions of Child Abandonment in Ghana

This research investigates the prevalence of Orphaned and Vulnerable Children (OVC) in Ghana. Specifically it seeks to illicit a more complex understanding of circumstances that lead to children being categorized under OVC. This is done by connecting global, local and gendered dimensions that lead to child abandonment specifically within two coastal communities in the Western region. This is done through qualitative research methods including in-depth semi-structured interviewing with informants in Ghana via Skype. This research first questions how a small residential care facility, Jesus is King Orphanage (JIKO) operates, and how it is able or inhibited to support the prevalence of OVC in the community. Second, this research investigates the stories of how the children at JIKO became abandoned and the gendered norms and inequalities within the community that are tied to occupation, marriage and education. Third, this research examines two documents on OVC and residential care in light of the information found in the prior two case studies, particularly a national document reported on by a coalition of Ghanaian non-governmental organizations (NGOs) regarding the rights of children, and a document written by the large, institutional NGO, Save the Children, on how residential care should be “A Last Resort.” This research illustrates how macro-economic initiatives affect the contexts of local gendered norms and inequalities that perpetuate child abandonment. It finds that as the government is ineffective in providing for the social welfare of women and OVC due to macro-economic initiatives, national and international responses and policy must be framed within a global, local and gendered understanding of the circumstances leading to child abandonment.

6 Room 809 10:40-11:25 Panel 1
Blanche Miller
Sonya Atalay (Faculty Sponsor)
Department of Anthropology, UMass Amherst
Mapping places of Native American cultural importance: a collaborative approach to researching and developing an interpretive trail.

Research agendas are traditionally set by the researcher, a practice that often leads to information that benefits academia more than the communities the research is about. During our UMass Amherst honors class Athro H370: Contemporary Issues of Native Americans, we decided to engage in community-based participatory research, a newer template of research that requires the researcher to engage with a community and find projects that are mutually beneficial. Our project will lay the groundwork for an interpretive trail that will feature Native American cultural places. The trail will be a collaborative effort between the Massachusetts Office of Travel and Tourism, the Massachusetts
Commission on Indian Affairs and students at the University of Massachusetts Amherst. Our research will focus on developing a better understanding of what Native American Peoples want from the trail and what issues will need to be addressed throughout construction. Some considerations we will examine include Native communities not wanting their sites to be identified, how to protect the sites that are identified, and how much information is appropriate to share with the public. We will gather this information through interviews with members of different Massachusetts tribes. We will also research the laws preserving sacred sites to better understand what limitations might be encountered during the trail’s construction. This information will be used in a three to five minute video that will serve as an introduction to the interpretive trail project and could be shown to Native American community members, policy makers, potential funding agencies. We hope it will inform the next phase of the research project, as the development and construction of the trail moves forward.

7 Room 917 1:30-2:15 Panel 3
Benjamin Schenkel
Annaliese Bischoff (Faculty Sponsor)
Department of Landscape Architecture, UMass Amherst
Art and Culture in the Public Domain: An Investigation into Free Culture, Sustainability, and 21st Century Media Technology

“There has never been a time in history when more of our “culture” was as “owned” as it is now. And yet there has never been a time when the concentration of power to control the uses of culture has been as unquestioningly accepted as it is now” (Lessig, 2004). Culture can be described as a social operating system, a collective perceptual infrastructure constructed from ideas and information (Mckenna, 1996). These cultural components exist in and are perpetuated by evolving artistic and intellectual expressions which frequently draw upon the past. The communication of these expressions allows for the travel and transformation of cultural code/laws of social perception. Today, interconnected digital media proliferate, creating frequent, complex, and rapid dissemination and exchange of cultural information. Lawrence Lessig (2004) describes our global condition of diminishing “unregulated” and “fair use” legal domains as a limiting of our freedom to borrow from prior expression. This thesis investigates the consequences of the restricting and privatizing of artistic and intellectual ideas that previously resided in free or unregulated public domains. It investigates the movement known as “Free Culture” which, building upon the open-source software movement, promotes a new cultural operating system that aims to liberate culture on all fronts from the suffocating influence of ever-powerful copyright laws and capitalist paradigms. It also investigates the specifics of the media and information technologies that have prompted such change, and asks whether the open source/free culture movement is sustainable.

ART

8 Room 917 1:30-2:15 Panel 3
Joseph Benavidez
Margo Steiner (Faculty Sponsor)
Department of Communication, Salem State University
Hair Today, Gone Tomorrow

We are never just who we appear to be. But can our appearances echo parts of our personality? Through the glassblowing medium, I explore how my variations in hairstyles over the past five years have affected the way I interact with not only my community, but with myself. After experimenting with the fluidity of molten glass, I drew parallels with how the changeability of my hair color reflected subtle differences in my personality. Vibrant pink hair brought a more flirtatious and brash side of me to the surface. Deep rusty locks inspired a serious and professional demeanor. Sunshine yellow, carved into a shark’s fin, showed my adventurous, confident attitude. Each hairstyle and behavior is a part of me, but only when they are merged does a picture of my true self become visible. With these three hairstyles displayed, I challenge audience members to question how their changing looks modify how they act. To question if their always evolving exterior helps hidden personality traits become more evident. And, most of all, to wonder if there’s a way to let hair show all aspects of our individuality. Each statue is a circular orb weighing about five pounds. Statues were made by blowing molten glass into the desired shape, then adding colored glass bits. Those bits were then molded to reproduce a featured hairstyle before the completed piece was placed in a “cool-down” oven. Once cooled, the pieces are able to be exhibited without risk of breaking or cracking.
“Every day, almost 30 people in the United States die in motor vehicle crashes that involve an alcohol-impaired driver. This amounts to one death every 48 minutes, [with] the annual cost of alcohol-related crashes [totaling to] more than $51 billion,” according to the Center for Disease Control and Prevention website. This thesis project draws attention to this societal issue by producing an anti-drinking and driving public art installation on the University of Massachusetts campus. Aiming to impact university students in an innovative and creative way, the project is rooted in sustainability. Assembled from recycled, empty, alcoholic bottles and cans the focal point of the project forms a to-scale car, which appears to be crashed into a tree. Rather than bombard students with trite messages from their childhood, this project conveys the timeless and significant message that drinking and driving has dangerous consequences in a startling and unexpected way. This presentation focuses on methods involved in pursuing the avenues involved in producing this project. First, a discussion on organizations involved in arranging for a space on campus where installations may be built will occur. Then an explanation of the process of can and bottle collections from students over the age of 21. Next, the planning and orchestration of building the frame of the car, as well as the student involvement in organizing this project and spreading the word of its development and message will take place. Lastly, a discussion will be launched around the results of this project and student interpretations.

**ART HISTORY**

10 Room 917 1:30-2:15 Panel 3
Amelia Kleinen
Annaliese Bischoff (Faculty Sponsor)
Department of Landscape Architecture, UMass Amherst
Power, Purpose, and Peril in Public Art: the joy of the public spectacle

“Public Art, in all its diversity, can mediate all spaces as Places” (John Newling). This thesis project, as a book of essays on public art, will mediate Places as human experiences. It is a book that identifies, celebrates, and criticizes power, purpose, and peril in public art from past to present. As the over-availability of images on the internet correlates with soaring general disinterest for museums nearing the brink of obsolescence, inspiration for the public art, alive and purposeful, is everywhere in today’s society. Public art firmly placed within its context carries a simpler, universal message to viewers due to its irrefutable position among the people. Because public artworks span diverse media and ideals, they provide society with a more vernacular art experience. They can impact the common man, as well as informed viewers. With an explanation of the art, this book entices readers to seek art out in public spaces and to form their own interpretations. At the same time, it will examine the question of sustainability in works by considering relationships to the environment, economy, and equity. Few books of this type exist in the marketplace, allowing a student author to illuminate the subject as well as offer a unique perspective. In drawing upon the past and in using creative, analytic thinking to confront the present, this approach will offer new insights into public art as Places with regard to sustainability.

**ASIAN STUDIES**

11 Room 808 3:30-4:15 Panel 4
Sarah Dingman
Doris G. Bargen (Faculty Sponsor)
Department of Asian Studies, UMass Amherst
Women Samurai: Their Capacity for Conflict and Change

The lives of women in the samurai class were often full of conflict, whether because of their own warrior status or the strife unique to samurai families. In my presentation I will examine the lives of various women from samurai families and how they responded to adversity. The thought processes that led these women to choose their path in life reveal their drive and capacity to cope. My two samples are drawn from two different artistic media: literature and
film. Tomoe, a semi-legendary female warrior from the warrior epic Heike Monogatari and the wives and daughters of samurai in Masahiro Shinoda's movie, Gonza the Spearman (1986) demonstrate radically different responses to conflicts that can be reduced to two choices: to remain in their current state and accept their fate, or to seek their own path through difficulty. In making her choice, does a woman of the samurai class embrace death in order to maintain her family’s honor or does she sacrifice honor in order to choose life? Though each choice had its consequences, it illuminates the factors that drove samurai women to their life-or-death decisions, which in turn reflected on the ethos of samurai culture.

12 Room 808 2:30-3:15 Panel 4
Rachel Siden
Doris G. Bargen (Faculty Sponsor)
Department of Asian Studies, UMass Amherst
“Harakiri” and the Fluidity of Samurai Honor

In the 1962 film Harakiri by Kobayashi Masaki, samurai honor is presented for scrutiny. The film portrays the many ways in which samurai honor was at stake in the mid-Tokugawa period (1603-1868). Is samurai behavior dictated by what is considered honorable or shameful? The film director challenges stereotypes of samurai honor as a strict code of conduct. My paper asserts that the definition of what was honorable was actually an imprecise, fluid concept that could change depending on the context. A samurai action could be condemned as extremely dishonorable despite its honorable intent, while shameful behavior – ordinarily considered dishonorable – could assume a semblance of honor. My goal will be to analyze how ideas of what was honorable and shameful developed in Japan, the effect these ideas would have on samurai behavior, and the way that clashing conceptions of honor, as demonstrated in the film Harakiri, can demonstrate what honor truly meant to samurai in an era of peace.

ASTRONOMY

13 Room 162 3:30-4:15 Panel 5
Marie Calapa
Daniela Calzetti (Faculty Sponsor)
Department of Astronomy, UMass Amherst
The Heating of Dust in the Nearby Galaxy M33: A Testbed for Tracing Galaxy Evolution

In order to examine distant galaxies, astronomers have been making use of infrared emission to measure their star formation rates. Because the 8-micron emission has been found to correlate with other well-known star formation tracers, it has been used under the assumption that it also traces areas of activity. There is, however, much speculation in this claim and evidence disproving the 8-micron emission’s accuracy. Our study, using the nearby spiral galaxy M33, will analyze the spectral features of this galaxy and provide further evidence to either support or deny the accuracy of the 8-micron emission as a star formation tracer. Data from the Herschel Space Observatory have been processed using IRAF and IDL to yield clean images of M33, removing noise from sky emission and foreground stars. After reducing the data, ratios of different wavelengths were made in order to find their correlation. A ratio of the 8-micron to the 24-micron emission will show whether the 8-micron emission is actually tracing star forming regions, for example. Other ratios of different wavelengths will help us learn what features specific emission traces within a galaxy. Some early results indicate that the 8-micron emission is correlated with the 250-micron emission, which traces cold interstellar gas. There is no obvious correlation with the 24-micron emission. It is important that the true nature of 8-micron emission be found, as a misunderstanding of what features it delineates may obscure properties necessary for the greater knowledge of our universe.

BIOCHEMISTRY

14 Reading Room 2:30-3:15 Panel 4
Michael Veling
Samuel Hazen (Faculty Sponsor)
Department of Biology, UMass Amherst
Testing computationally derived transcription factor binding motifs putatively involved in plant biofuel attributes
Cellulosic biofuels are a renewable energy source that can be harnessed to meet the energy needs of our growing population. Plant cell walls are rich in polysaccharides, namely cellulose and hemicelluloses, and provide the feedstock for biofuel production. Understanding the process by which plants regulate the biosynthesis of fermentable sugars is an important part of understanding how to improve energy crops. DNA sequence analysis was used to identify sequence motifs over-represented in the promoters of Arabidopsis thaliana and Brachypodium distachyon cell wall genes. Four tandem copies of the putative binding motif were synthesized and fused to the LacZ reporter gene. The vector was transformed into yeast to be used in yeast one-hybrid assays for protein-DNA interactions. Motifs containing mutations in highly conserved residues were designed to test sequence necessity and specificity of binding. Protein-DNA interactions in both species will be presented along with an empirical evaluation of motif discovery approaches.

**BIOENGINEERING**

15  Reading Room 2:30-3:15 Panel 4  
Sayo Osinubi  
Elizabeth Dunphy (Faculty Sponsor)  
Department of Biology, Bunker Hill Community College  
**Toxicology effects on CHO mammalian cells**

Mammalian cells are used in research to study drug efficacy as well as genetic conditions. The purpose of this experiment is to identify the effects of different chemical environments using basic household products such as bleach, detergent and alcohol on mammalian cells. The effect of these hostile chemicals on mammalian cells can help reinforce the importance of careful usage of common household products. An assay of healthy cells were performed using different chemical concentrations: 5%, 10%, and 20%. A control of the cells were used. These cells did not contain any chemicals. The different chemical concentrations of alcohol, bleach, DMSO, tea tree oil, emu oil, glycerol were used and accessed at 5 different time points; 30 minutes, 1 hour, 2nd hour, 1st day, 2nd and 3rd day after the inducing the cells with the chemicals.

**BIOLOGY**

16  Room 101 2:30-3:15 Panel 4  
Dianne DuBois  
Buzz Hoagland (Faculty Sponsor)  
Department of Biology, Westfield State University  
**Microplastic Particle Pollution in the Marine Environments of Sandy Point National Wildlife Refuge, St. Croix, VI**

Scientists around the globe are becoming increasingly concerned with the extent and toxicity of microplastic pollution in the world’s oceans. Microplastic particles appear to be ubiquitous in marine environments, but the extent to which they have contaminated regions adjacent to the oceans (e.g., bays, marshes, salt ponds, etc.) is unknown. Levels of microplastic pollution were examined, through use of IR spectroscopy, in a closed salt pond, an open salt pond, and adjacent open ocean on St. Croix, VI. The closed salt pond is located on Sandy Point National Wildlife Refuge (SPNWR), St. Croix, VI and is a nesting site for the endangered Least Tern and a roosting site for the threatened Brown-headed Pelican. SPNWR is also home to the largest nesting beach in the US for two endangered and one threatened sea turtle species.

17  Room 162 2:30-3:15 Panel 4  
James Dubord  
Aline Davis (Faculty Sponsor)  
Department of Biology, Framingham State University  
**Effects of 17α-ethynylestradiol on the physiological development of Xenopus laevis tadpoles**

The increased use of hormone-based birth control over the last few decades has created concern regarding the local ecosystems that are exposed to hormone-contaminated wastewater. Hormones are not specific targets to be filtered out in waste treatment plants; therefore it is likely that many hormones go through the plants untouched and collect in lakes and ponds and pose a risk to aquatic life. One of the main components of hormone-based birth control is the synthetic estrogen 17α-ethynylestradiol. A previous study found that exposure to ethinylestradiol altered the...
development of Rana pipiens (northern leopard frog). We exposed Xenopus laevis (African clawed frog) tadpoles to two different concentrations of ethinylestradiol and observed the overall development of the tadpoles. In addition to physical changes, the tadpoles in this study were examined for behavioral changes, via a startle response, to determine effects of ethinylestradiol on the nervous system. Tadpoles that were chronically exposed to high levels of ethinylestradiol demonstrated a lower rate of startle response, indicating that ethinylestradiol in the aquatic environment can affect nervous system activity.

18 Room 101 2:30-3:15 Panel 4
Brenda Lopez
Buzz Hoagland (Faculty Sponsor)
Department of Biology, Westfield State University
Marine invertebrate Diversity in Great Pond, St. Croix, VI

Great Salt Pond (Westend Pond) is a natural hypersaline environment located on Sandy Point National Wildlife Refuge, St. Croix, VI. Three smaller ponds are located adjacent to Great Salt Pond; two are artificial ponds created through the mining of sand, and one is a natural pond. Although the ponds are located within several hundred meters of each other, their physical and chemical characteristics are markedly different. This study reports the results of a survey of the invertebrates inhabiting the four ponds during March 2013, and addresses possible correlations between physiochemical characteristics and invertebrate biodiversity.

19 Room 162 2:30-3:15 Panel 4
Gina Mannarino
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University
Biodiversity of Birds on Prospect Hill

This short proposal can be admired of age groups and help educate of the bird species around them and what changes they undergo. To the casual and beginning birders, this short comparison from 1993 to 2013 may spike an interest. Westfield, Massachusetts is home to dozens of native and invasive species. Many of these species are migratory like the Oriol. This study focuses on a small section of a foretasted area called Prospect Hill located in Westfield, MA. This zone was tract and mapped out in 1910, the land there is still clear and mobile for sky observations. In 1993, Richard Lent spent a short term studying the biodiversity of birds within the Harvard Forest, (Lent, R. 2003). Lents work is used in comparison to this study's findings. This study shows the observed bird species of Prospect Hill and compares them to the previous findings by Lent from the Harvard Forest. The data collected in 1993 shows a large gap for species to change migration patterns due to inclement weather, human influences and predation. What new species have been introduced? What species have not returned? What are the possible reasons?

20 Room 101 2:30-3:15 Panel 4
Anna Rock
Jeffrey Blaustein (Faculty Sponsor)
Department of Psychology, UMass Amherst
Peripubertal Binge Alcohol Consumption or Immune Challenge Alters Behavioral Response to Estradiol in Adult Female Mice

Puberty is characterized by neurochemical, physiological, and behavioral changes; perturbations by particular stressors, including immune challenge, of these processes may alter adult behavior. Concurrent with pubertal development, adolescent humans often engage in an array of impulsive, detrimental, and novelty-seeking behaviors, including the binge consumption of alcohol and other substances of abuse. We have previously demonstrated that exposure to bacterial endotoxin, lipopolysaccharide (LPS), during the peripubertal period in female mice reversed or eliminated the expected response to estradiol replacement on depression-like behavior and cognition in adulthood. As both ethanol and LPS induce neuroinflammation through shared molecular targets, binge consumption of alcohol during puberty could alter neuroendocrine systems regulating estradiol-influenced behaviors in adulthood, similar to the long-term effects of pubertal LPS administration. During the pubertal transition period (4-7 weeks), female CD-1 mice consumed a sweetened solution with or without 10% w/v ethanol on a chronic intermittent access schedule to promote “binge-like” drinking. To compare effects of binge drinking to LPS exposure, LPS (1.5mg/kg/mL; intraperitoneal
injection) or saline were administered at 6 weeks of age and monitored for sickness behavior. At adulthood, mice were ovariectomized and implanted subcutaneously with a Silastic-© capsule containing either estradiol or oil vehicle. Approximately one week post-surgery, mice underwent testing for two hippocampal-dependent cognitive tasks (object recognition; object placement recognition), followed by tests for depression-like behavior. Binge drinking and LPS during the pubertal period each resulted in transient alterations in behavior (intoxication or sickness behavior). Animals were euthanized for collection of brains for future analysis of estradiol modulation, immune activation, and activation of stress-mediating systems. While prior research on peripubertal binge drinking in humans and rodents offers insight into how ethanol induction can alter stress reactivity, this pilot study is expected to illuminate an additional factor that may contribute to the onset and progression of mental illness in young women.

CHEMICAL ENGINEERING

21 Reading Room 1:30-2:15 Panel 3
Corinne Carpenter
Jessica Schiffman (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Properties of Defect-Induced Amorphization of Graphene

We address several aspects of defect-induced amorphization of graphene, including the structure and morphology dependence on the inserted defect concentration, the onset of defect-induced amorphization, and the effects of the defect density and amorphization transition on the graphene's electronic and mechanical properties. Our study was based on isothermal-isobaric molecular-dynamics simulations using large supercells containing thousands of carbon atoms. Random distributions of single vacancies were introduced into the graphene lattice at a given concentration, and the response of the defective graphene sheets was explored over a range of concentrations based on a variant of simulated annealing. The analysis of the simulation results for the relaxation of the defective graphene samples included structural and morphological characterization of the relaxed configurations based on calculation of metrics such as the radial distribution function, structural order parameters, and RMS surface roughness. We used density-functional tight-binding calculations to compute the electronic density of states of the structurally relaxed configurations. Finally, we performed deformation tests to determine the initial fracture mechanics and extended tensile behavior of the defected sheets. We predict that the onset of the amorphization transition occurs at an inserted vacancy concentration between 5 and 10%, with the transition becoming less abrupt as temperature increases. We find that the computed amorphized configurations are in agreement with those observed in recent experiments of high-dose exposure of graphene to 100-keV electron irradiation. We also find that the electronic density of states of vacancy-amorphized graphene is characterized by introduction of localized states near the Fermi level, consistent with those arising from random vacancy insertion in graphene at low concentrations.

22 Room 101 3:30-4:15 Panel 5
Ryan Deeney
Jessica Schiffman (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
ZnSe Quantum Dot Synthesis with Selenourea as a Selenium Precursor

Purpose Semiconducting zinc selenide nanoparticles or quantum dots (QDs) have many desirable properties such as high brightness, good photostability, and size-dependent luminescence. These properties, observed only when particle size is restricted to the nano scale, make QDs useful in the fields of clinical diagnostics, optoelectronics, and photovoltaics. A popular technique utilized by the Mountziaris Lab Group is the use of a microemulsion growth template to limit the size of QDs. This technique makes use of hydrogen selenide gas, a highly toxic compound, and a replacement selenium compound, selenourea was used in its place. Methods This modified microemulsion technique was utilized to create samples of zinc selenide QDs via the reaction of selenourea and zinc acetate. The selenourea solution was stabilized by the addition of sodium sulfite and ammonium hydroxide, and created under nitrogen. The reaction was also carried out in solution for the purpose of creating bulk material. Samples were heated to various temperatures. Characterization of these samples was accomplished with a fluorometer to observe for the presence of distinct and well-defined peaks at the proper wavelength. Results and Conclusions The reaction between selenourea, properly stabilized with sodium sulfite and ammonium hydroxide, and zinc acetate produced zinc selenide QDs. Characterization of these samples via fluorescence showed characteristic zinc peaks around 385 nm. Upon closer
inspection, samples heated to 60 °C had the highest brightness of all reacted samples. The synthesis of a second series of samples yielded the same results. The relationship between intensity as a function of reaction temperature increases initially, reaches a maximum at 60 °C, and then decreases. Examination of the solution chemistry under the same conditions did not result in the creation of zinc selenide bulk material; the reaction temperature must be closer to 90 °C for this to occur. The presence of the microemulsion in the reaction allows for zinc selenide synthesis at lower temperatures. The microemulsion, often simply considered to be only a growth template, thus has a larger role in QD synthesis than initially expected.

23 Reading Room 2:30-3:15 Panel 4
William Frantz
Susan Roberts (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Paclitaxel distribution in Taxus cell aggregates

Breast cancer is the most prevalent type in women, with 250,000 new cases and 40,000 deaths expected in 2012. A proven drug for the treatment of breast, ovarian, and other cancers is paclitaxel. Unfortunately, the natural source for paclitaxel, the pacific yew tree, is not a viable option for drug supply due to low yields and harsh extraction procedures. We study production of paclitaxel in aggregated plant cell suspension cultures to optimize culture technology for large-scale supply. Upon division, plant cells often do not fully separate, creating a range of aggregate sizes within a culture that behave metabolically different due to varying microenvironmental condition. Cells in the interior of an aggregate are exposed to significantly different conditions than cells at the exterior of an aggregate, potentially affecting their ability to produce paclitaxel. To study paclitaxel distribution within an aggregate, we have designed immunohistochemistry experiments to image paclitaxel, including 1) a cryopreservation/fixation method that minimizes changes in cell morphology upon fixing freezing and 2) use of fluorescent microscopy with an antibody directed against paclitaxel to determine its distribution within aggregates of different sizes. Results from this research will further our understanding of how best to optimize culture environments to promote paclitaxel synthesis.

24 Reading Room 1:30-2:15 Panel 3
Alec Gramann
Jessica Schiffman (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Impact of paclitaxel accumulation on population balance equation model of Taxus cell cultures

Over 200,000 women are diagnosed with primary breast cancer each year, and that number continues to increase annually. Of this population, metastasis of the primary tumor affects approximately 30% and decreases the five-year survival rate from 98% to 23%. However, metastasis of primary breast cancer tumors can often be avoided with early detection and aggressive treatment with effective anticancer agents. With the number of breast cancer cases continually increasing, the need for readily available anticancer agents grows as well. Paclitaxel is a known anti-cancer agent that has proven to be effective in the treatment of breast and ovarian cancers, as well as other forms of cancer. Current production of paclitaxel relies on an inefficient large-scale fermentation process, where suspension cultures of cells derived from the Taxus plant are grown and harvested for paclitaxel. The inefficiencies of this process are largely due to a lack of understanding of how fermentation parameters interact and impact the overall production rate of paclitaxel. This lack of understanding has led to the limited availability and high cost of treatment. Previous fermentation systems of similar cell types have been modeled using population balance equations, which can then be optimized, increasing production by up to 50%. Preliminary data have shown that the behavior of Taxus cell cultures is directly related to specific factors, such as pH, temperature, nutrients, minerals, and growth factors. A model for Taxus cell cultures was previously developed to account for these parameters. However, evidence suggests that the accumulation of paclitaxel is an additional parameter that may be crucial in understanding the fermentation process. We propose to retrofit this previous model of Taxus cell culture behavior to include paclitaxel accumulation. Paclitaxel accumulation within the culture may inhibit the further production of the drug. Because the fermentation operates as a batch process, the concentration of paclitaxel is constantly increasing. Previously developed systems with known product inhibition have adopted alternative operating processes, such as fed-batch and semi-continuous operations. We hypothesize that an analysis of the model with these additional parameters will help determine if alternative operating procedures will improve the levels of paclitaxel on production.
Enhancement of solution state crystallization of poly(3-hexylthiophene) (P3HT) was examined via a controlled heating and cooling process to induce self seeding. P3HT was first crystallized in solution by heating in a marginal solvent, followed by cooling to induce the crystallization process. The solution was then reheated to just below the melting point, leaving only small, stable crystals in solution. The samples were then recrystallized with these ‘seeds’ present to determine if they acted as homogenous nucleation sites, enhancing the crystallization process. Additionally, the effect of constant mixing and ‘stir-bar nucleation’ were also examined to see how much each individual factor affected the crystallization process. It was found that little to no crystallization occurs in P3HT dissolved in p-xylene when the crystallization process is done in the absence of seeds and mixing, and the extra step of the self-seeding heating and cooling process showed an apparent increase in crystallization rate. Experiments with the effect of mixing and stir-bar nucleation will be performed soon, and it is expected that mixing will increase the rate of crystallization due to reduced diffusion limitations, while stir bars may be serving as initial nucleation sites for the polymer, increasing crystallization rate.

Representing the Effects of the BK Channel on Circadian Activity through a Mathematical Model

Circadian clocks have been discovered to help regulate the timing of an organism’s everyday biological functions. In mammal’s, the suprachiasmatic nucleus, located in the hypothalamus, has been identified as the key pacemaker in the brain. Composed of thousands of neurons communicating through the buildup of a voltage potential via various ion channels and their eventual firing, the SCN keeps the human body entrained to a 24-hour light-dark cycle. This entrainment results in rhythmicity of oscillations in firing rate, as well as the currents of the various ion channels found in neurons. These SCN cells can maintain these robust oscillations of high activity during the day and low activity at night by synchronizing to one another. One ion channel in particular, the BK channel, has been identified as a key channel in the suppression of firing rate during the night. Studies have shown that the removal of the gene encoding for the formation of this channel results in increased firing rate of neurons at night and a decrease in the robustness of the oscillations. This study seeks to develop a mathematical model for both a single cell and a multicellular network to accurately represent and predict the effect of this channel on brain and biological activity, while accurately representing experimental data and known phase relationships between certain currents.

The pyrolysis of biomass to produce biofuels is a potential source of alternative energy. Pyrolysis involves heating solid biomass (such as wood and other lignocellulosic materials) to high temperatures (500 degrees Celsius) in the absence of oxygen, resulting in a final product (bio-oil) that can be upgraded to produce liquid fuels. However, the kinetics and reaction mechanisms of pyrolysis must be determined in order to better utilize this process. In addition, pyrolysis of biomass contains inherent heat and mass transfer effects stemming from the structure of lignocellulosic biomass. In an effort to better understand these transfer limitations, wood fiber thin films (where the wood has been separated into individual fibers) were produced and characterized for pyrolysis reaction experiments. We have developed a technique that preserves the chemical integrity of the fibers; the resulting wood fibers were then organized into a thin film via vacuum suspension. In an effort to control the dimension of these films, cellulose was used to make thin films and determine what factors influence film thickness. We find that film thickness is positively correlated to weight percent of cellulose in suspension and negatively correlated to suspension volume. Applying these results to manipulate the
thickness of wood fiber or cellulose thin films allows for further study into the effect of wood microstructure and sample dimension on biomass pyrolysis chemistry.

28 Room 163 2:30-3:15 Panel 4
Maksymilian Nowak
Shelly Peyton (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Tissue Stiffness and Breast Cancer Metastasis

90% of breast cancer deaths are due to metastasis - the spread of cancer to organs throughout the body. My goal is to understand why cancer cells spread, or migrate, from the primary tumor site, and how this spread might be regulated by the local stiffness of the tissue. While substrate stiffness is a geometrically dependant property, substrate modulus is an intrinsic material property and is therefore independent of geometry. These two terms have been used interchangeably in the literature, however, so it is unclear if cell response is due to changes in stiffness, modulus, or both. By designing an experimental system where stiffness and modulus can be independently tuned, I have begun to quantify the effects of each on metastatic breast cancer cell migration. The biomaterial substrate we use in this experimental system is made out of a poly(ethylene glycol)-phosphorylcholine (PEG-PC) hydrogel, wherein we can vary the modulus by using different concentrations of PEG, the crosslinker, and change stiffness by varying the height of the hydrogels on top of a rigid glass surface. So far, the data has shown a biphasic response to changes in stiffness at low modulus values, while higher modulus value data has shown no discernible pattern. Further experimentation is being currently carried out to better characterize this biphasic response using different modulus values. Future directions include investigating the effects of these 2D properties on invasion properties, on which preliminary experimentation is currently beginning.

29 Room 101 3:30-4:15 Panel 5
Nicholas Skarzynski
Michael Henson (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Effects of Surfactant Coverage on Solid Lipid Nanoparticle Polymorph Change

Solid lipid nanoparticles are a means of delivering bioactive compounds that has been gaining popularity in recent years. These nanoparticles, or SLN, are one of a number of fat-based parenteral technologies under development. SLN consist of a solid lipid particle covered in a layer of amphipathic surfactant. Particle sizes are on the order of 50 to 1000 nm. Certain bioactive compounds are unstable in a biological environment, or are not water-soluble. The lipid particle protects such components from degradation or denaturation, and allows them to move more easily through an aqueous environment. SLN consisting of triglyceride fats tend to form initially in the metastable α polymorph. They also have a less-ordered crystal structure, allowing greater incorporation of bioactive compounds into the lipid matrix. Particles in the α polymorph are flatter, and more platelet-like in appearance. Their more-ordered crystal structure results in a lesser loading capacity for bioactive compounds. SLN in solution tend to transform from the less stable α particles to the more stable β particles over time, resulting in expulsion of carried molecules. This presentation outlines some experiments that have been undertaken to investigate the stability of SLN solutions based on different methods of preparation.

30 Reading Room 1:30-2:15 Panel 3
Jean Smith
Jessica Schiffman (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Effect of Thermoreversible Micellization on Nutrient Transport in Alginate/Pluronic® Composite Hydrogels

Hydrogels are of great interest as biomaterials due to their biocompatibility and unusual capacity to absorb up to thousands of times their weight in water. This study was conducted to investigate nutrient transport in a series of alginate and Pluronic® composite hydrogels. Gels containing Pluronic® surfactants F-68 and F-127 were compared. Micellization of the surfactant inside the gel is temperature dependent, causing thermoreversible gelation which occurs near physiological temperature for most F-127 formulations, but at higher temperatures for F-68 formulations. All formulations were tested at different temperatures for the effect of thermoreversible micellization on nutrient
transport. F-127 was run at 25 and 40 °C, while F-68 was run at 25 and 50 °C. Riboflavin was chosen as the transport molecule for its small size and ease of colorimetric detection. Diffusion coefficients of riboflavin through alginate/F-68 and alginate/F-127 composite hydrogels at different temperatures were determined using a membrane transport system. Alginate controls show a significant increase in diffusion rate with temperature, but Pluronic®, gelation offsets the weakening of the alginate network at elevated temperatures, resulting in an unchanged diffusion coefficient. Alginate acts as a crowding agent on the surfactant micelles, causing gelation to occur at lower temperatures in the gels than in surfactant solutions. The crowding effect depends on the concentration of alginate relative to the Pluronic® concentration. Increased Pluronic® concentration reduces alginate content and does not change the diffusion coefficient. The effect of Pluronics® on nutrient transport has important implications for biomedical applications.

31 Room 162 3:30-4:15 Panel 5
Siddharth Sood
Jessica Schiffman (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Syntrophic interactions of Geobacter in Wastewater Reactors

Geobacter metallireducens can degrade ethanol via interspecies metabolic interactions mediated via pili and cytochromes. The evaluation of such interspecies interaction has potential applications to waste water management. Little is known about what species can interact syntrophically with abundant Geobacter species. This study was designed to identify syntrophic partner microorganisms for a Geobacter species, Geobacter metallireducens. A novel isolation approach using genetically engineered strains of G. metallireducens with antibiotic resistance was used to determine species abundance. This strain was added in batch culture with aggregates extracted from a lab-scale up flow anaerobic blanket reactor (UASB). This experiment was performed in the presence of the antibiotic kanamycin to ensure the engineered strains growth. Methanogens (naturally resistant to antibiotics) have been isolated successfully using different antibiotics including kanamycin. Culture growth was monitored over the course of several weeks using high performance liquid chromatography (HPLC) and gas chromatography (GC). Dilutions to extinction were used to isolate strains by transferring the last grown culture repeatedly to isolate strains. Cultures were screened at different stages during isolation using terminal restriction fragment polymorphism (TRFLP), which identifies changes in species abundance in the samples. Methane production in the cultures of interest proves that pairing has occurred. Molecular analysis via TRFLP is ongoing to determine what species paired with engineered Geobacter strains. The results of this study could demonstrate the existence of electron transfer under environmentally relevant conditions as well as the ability of G. metallireducens to create electric connections with environmentally relevant microorganisms.

32 Room 162 3:30-4:15 Panel 5
William Yarr
Jessica Schiffman (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Quantifying Size Dependence of Quantum Dot Emission Spectra

Over the past decade, an increasing amount of research has showcased the properties that semiconducting nanocrystals, or quantum dots, have. The narrow emission spectra and high stability of quantum dots make them promising candidates for use in electronics, optics, and biological tagging. While bulk quantities of these semiconducting materials show few or no effects as a result of changing size, below a 10nm diameter, a whole spectrum of fluorescent emissions can be produced by altering the size, composition, or shape of a semiconducting crystal. The primary focus of my research is based on this size-tunable behavior, or more precisely, the prediction of peak quantum dot emittance wavelength based on particle size. There is a proportional relationship between the radius of one of these quantum dots and the wavelength at which they fluoresce, although the degree to which their fluorescence shifts with size is highly dependent on their constituent atoms. A formula known as the Brus equation currently provides an approximate relationship between particle radius and wavelength based on the band gap energy, excited electron mass, and electron hole mass of a given material, but is subject to a high degree of error. The ultimate goal of my research is to modify this equation using a combination of TEM readings and fluorescence characterizations provided in literature, and data from quantum dots synthesized in lab, to provide a much more precise prediction for a number of different materials such as zinc selenide and cadmium selenide.
Presenters • Oral Sessions

**CHEMISTRY**

**33 Room 909 11:35-12:20 Panel 2**
Theresa Madrigal
Aisling O’Connor (Faculty Sponsor)
Department of Chemistry, Fitchburg State University
**A Study of the Occurrence and Quantification of Artificial Dyes in Beverages**

Although they contain no inherent taste or nutritional value, artificial food dyes are added to a variety of beverages to visually appeal to consumers. In the USA, eight artificial dyes, known as FD&C (Food, Drug and Cosmetic) dyes are approved for use in foods and beverages. Manufacturers are required to report the identity of the dye on the item packaging, but not the concentration. A survey of a local supermarket drink aisle was conducted to determine the most common dyes present individually and in combinations. The levels of individual food dyes in a variety of beverages were determined spectrophotometrically. Additional beverages containing a combination of dyes were analyzed quantitatively by means of HPLC. Additionally a comprehensive analysis of previous research was carried out to determine which dyes are the most prevalent, which pose serious risks, and natural alternatives. It was concluded that Blue 40, Yellow 5, Yellow 6 are the most commonly used dyes. Risk factors associated with these dyes include behavioral issues in children and also carcinogenic effects. In 1960, the Color Additives Amendment set strict regulations for the safe use of artificial food dyes. These regulations were appropriate for amount of dyes consumed at that time and are still effective today. Though individual drinks may adhere to these regulations and may pose insignificant risk, the current increased popularity of processed foods has shown a fivefold increase in consumption of dyes since 1955. Natural alternatives to these dyes include beta-carotene, paprika, and beet juice will also be discussed.

**34 Room 809 2:30-3:15 Panel 4**
Samantha L Glaze-Corcoran
Theresa Madrigal
Aisling O’Connor (Faculty Sponsor)
Department of Chemistry, Fitchburg State University
**Science Club for Girls: An After-School STEM Program for K - 8th Grade Girls**

Science Club for Girls (SCFG) is an organization started in 1994 at King Open School in Cambridge, Massachusetts. With the aid of female role models as Mentor Scientists, its goal is to demonstrate to young girls the importance of STEM education in a fun club environment. It aims to show that opportunities in this field are not set to racial and gender standards. By showing them that science is fun and interesting at a young age, SCFG hopes to end the inequality women face in these fields. Over the course of two semesters, two Fitchburg State University students taught two SCFG curricula at the Boys and Girls Club in Leominster, MA. During the fall semester the curriculum focused on magnetism and circuitry. The girls were encouraged to work in groups building various circuits and discovering the properties of electricity magnetism. During the spring semester, the curriculum focused on chemistry and crystals. The experiments the girls conducted enforced the ideas of physical and chemical changes, energy exchanges, and the formation and properties of crystals. The experience successfully engaged many of the young girls in the clubs to consider STEM fields as potential career goals. The benefits of the club experience extended to the Mentor Scientists as well. SCFG enabled them to rediscover their interests in science at that age and make personal connections to each of the girls.

**CHINESE**

**35 Room 808 2:30-3:15 Panel 4**
Xinyuan Hu
David K. Schneider (Faculty Sponsor)
Department of Chinese, UMass Amherst
**Politically environmental changes in China Mainland and Taiwan reflected by different images of Soong May-ling from the Central Daily News and the People’s Daily News in different eras**

Soong May Ling, also called “The Last Empress of China”, is known as one of the most controversial women of the twentieth century. Her complex background and political roles have been described in diverse ways during different
eras in mainland China and Taiwan. Her portrayal in two official newspapers of the Chinese Communist Party and the Kuomintang (the People's Daily Newspaper and Central Daily Newspaper respectively) could accurately reveal the political stance of each party and its government. By analyzing articles that relate to Soong May Ling in both newspapers chronologically, two clear trends are apparent. First, that the image of Soong May Ling varied several times in both newspapers because of changes in the political environments after World War II, and secondly that the viewpoints on Soong May Ling have been increasingly similar among the two publications. Since both newspapers portrayed different descriptions of Soong May Ling sixty years ago, the current similarity is a clear sign that illustrates the immense political environment changes and a turning point between the two regions of mainland China and Taiwan.

HONORS

36 Room 908 1:30-2:15 Panel 3
Kyle Angstadt
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Implications Behind Intern Injustice

The lack of clear regulation for internships under the law has allowed employers to take advantage of student interns in an exploitative fashion. Due to these unfair practices, this project attempts to address some of the key resulting issues as well as examine how students and universities have a role in encouraging these trends. Offered in response to this issue are three policy alternatives and a suggested plan of action. On the grassroots level, this project explores plans for a campaign towards equal internship opportunities. As the scope of these issues is quite broad, the focus will be upon unpaid internships. In the presented campaign, students will be organized to educate employers, universities, and other students about the issues that arise from employer exploitation and how to prevent these malpractices. By educating the three key players in my research, the aim is to minimize intern injustice by reducing the number of unpaid internships offered by employers, the number of accepted unpaid programs by universities, and the number of students willing to work as unpaid interns.

37 Room 163 3:30-4:15 Panel 5
Keith Kittelson
James Boyce (Faculty Sponsor)
Department of Economics, UMass Amherst
The Beginning of Oil

My research explores the early years of the oil industry, particularly the years from 1850 up until World War One. During this period, many crucial innovations took place, including drilling and refining techniques and improvements in transportation. Many interesting characters emerged as well, such as Marcus Samuel, Ludwig Nobel, the Rothschilds and John D. Rockefeller, and they were instrumental in the creation of enormous oil companies that over the years would evolve into the very names we see on our street corners everyday (such as Shell, ExxonMobil, and Chevron). In focusing on the beginnings of the oil industry, I examine how these companies not only have achieved but also maintained enormous power, control and influence over this precious natural resource.

38 Room 168 2:30-3:15 Panel 4
Nicole Mitchell
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Union Organizing for Worker Rights

My research project focused on union organizing. As part of my capstone project last semester, I created a public policy surrounding the issue of human sex trafficking. One of my solutions to addressing this issue was to legalize prostitution and unionize all sex workers in an effort to give all of them protective rights. Through this research, I learned the importance of unionizing as a way to gain invaluable rights for workers. As a continuation of this work, I used elements of organizing to unionize workers. Since the industry of human sex trafficking is underground and difficult to prevent or uncover, I used that idea of union organizing in a different industry. I worked with Unite HERE, a group that focuses on unionizing restaurant, hotel, garment, textile, manufacturing, and warehouse workers. The overall goal of this
organizing project is to unionize university dining hall workers. I will discuss the overall strategy for this organizing project with a focus on the beginning of the campaign (as the projected end date for signing a contract isn’t until October). I will describe tactics used in early states such as 1-on-1s with workers to find a common narrative and develop leaders. Our ultimate goal through these 1-on-1s is to help empower these workers to organize to establish fair pay, quality benefits, and safe and comfortable working conditions for all dining hall workers. This organizing research is important because, along with this research, I will be testing out certain skills used for union organizing and learning about what tactics fit best for this kind of work. I will share the lessons learned including successes and challenges of this work.

COMMUNICATION

39 Room 917 10:40-11:25 Panel 1
Blair Bailey
Peter Oehlkers (Faculty Sponsor)
Department of Communication, Salem State University
Your Programmer is in Another Castle: A Study of Women in the Video Game Industry

Since its creation in the 1970s, the business of video games has often been considered a “man’s world.” As recently as a few years ago, it was reported that fewer than 1 in 5 employees within the video game industry is female, and among game programmers women are particularly scarce. However, recent studies show that nearly half of gamers are female and that women over 18 are one of the industry’s fastest growing demographics. In a market nearly equally divided between genders, the lack of women employed in the industry is striking. In this study, the evolution of women’s involvement in the industry is examined along with some related controversies. This study also includes three open-ended interviews with female industry professionals to initiate an in-depth look into the industry through qualitative research. These interviews address each woman’s experience in the field, describing the gender discrimination they have faced and the evolution in the treatment of women they have witnessed. Although the findings from three interviews alone cannot be generalized to the experience of every woman within the game industry, they yield insight into important issues such as gender discrimination within the workplace and the various theories as to why few women are involved within the industry.

40 Reading Room 11:35-12:20 Panel 2
Jean-Philippe Beaudet
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
America: One Night Land

The “hook-up culture” is a pervasive and steadily growing lifestyle choice that has been attributed to Western youths, and specifically college students. Hooking up is a vague term used to describe sexual encounters that may or may not include sexual intercourse, occurring on only one occasion, or repetitively, but with no specific relational investment between strangers, friends, or brief acquaintances. This is a deviation from the traditional relational model that relied on steady, intimate, monogamous relationships, which were the norm as recently as 20 years ago. My research will add to the growing body of work on the subject by exploring the relationship between personal attributes or characteristics and the willingness to participate in a hookup culture. A second goal of my study is to determine whether hookup behavior is largely a collegiate experience, as much of the literature seems to accept, or whether it is more pervasive than that. Lastly, though researchers have probed the social and personal reasons people hook up (peer pressure, potential for relationship, empowerment etc.), I will go beyond people’s motivation for hooking up to determine what factors are associated with hook up success.

41 Room 163 11:35-12:20 Panel 2
Alexandra Bunnell
Leda Cooks (Faculty Sponsor)
Department of Communication, UMass Amherst
Effectiveness of Anti-Bullying Programs at South Hadley High School

Effectiveness of Anti-bullying Programs at South Hadley High School Alexandra Bunnell Abstract For my research I want
to examine the anti-bullying policies and programs set up by South Hadley High School following the suicide of Phoebe Prince. I want to look at how effective the programs are and how the students and staff perceive them to be working. Often a school’s administration identifies whether or not their programs are effective, but students are the ones who are directly involved with the programs and have to live with the consequences. For my research I will facilitate five dialogues with students from various grades at the high school and interview students and staff members. I will record the dialogues and interviews, as well as take notes to analyze their stories regarding bullying and efforts made to prevent it. It is important as well to hear how teachers and guidance counselors perceive how the school is handling bullying, I will interview five staff members to hear their opinions on the programs. To supplement this research, I will review school documents and policies on bullying before and after the suicide of Phoebe Prince. My research aims to determine if there has been changes student’s perceptions of school climate around following the suicide of student Phoebe Prince, and how those compare with perceptions of teachers and administrators at the school. I hope to determine whether or not anti-bullying programs are decreasing bullying at South Hadley High School.

42 Room 917 11:35-12:20 Panel 2
Brian Kessell
Audrey Kali (Faculty Sponsor)
Department of Communication, Framingham State University
Comparative analysis of media representations of American and Gulf State Muslims post 9/11.

The terror attacks of September 11th, 2001 were arguably the most influential events to shape the last decade of United States and the way its non-Middle Eastern citizens interact with and understand the Middle Eastern world. This paper, in exploring post 9/11 media representations of both American Muslims and Gulf State Muslims, develops a comparative analysis between non-fiction/ factual news media and fiction based entertainment media. These media include mainstream films and popular television shows. Through a methodology of rhetorical criticism, images and narratives are analyzed to assess the comparative distinctions between the genres. As both forms of media (news and dramatic) participate in the entertainment media complex (EMC), this paper argues that the representations across the genres vary insignificantly. In this paper, the EMC is referred to as the relationship between providers and producers of the specified types of media and their bias or agenda driven constituent viewership base. As clarification, an example of EMC would be the role factual news media takes in selecting stories and news coverage to maximize financial gains and viewership figures. Included in the study is how media representations of American Muslims and Gulf State Muslims affect American attitudes and limit intercultural tolerance. The paper concludes by exploring how media representations may be constructed to convey authentic rather than stereotypical images of the Arab world.

43 Room 163 1:30-2:15 Panel 3
Jessica Killam
Mary Baker (Faculty Sponsor)
Department of Communication, Fitchburg State University
Film Script Interpretation: Understanding the Differences Among Crew Members

It takes many different people in many different creative roles to create the typical films we see today. This research study will show how, when posed with the challenge of creating the same film, different crew members in very distinctive roles – such as Directors, Producers, Cinematographers and Gaffers – visualize a script differently than one another. All those questioned in this study will receive a single script page and be asked to analyze it based on the role they have been given by the research conductor. The expected results will show the many different ways in which a single piece of writing can be analyzed, and how that can affect the group communication and help improve upon it. By understanding these different perspectives, crew members and other small group members in any work environment will better understand how to communicate with one another and get their tasks done in a more efficient manner.

44 Room 911 1:30-2:15 Panel 3
Mary Lenahan
Leda Cooks (Faculty Sponsor)
Department of Communication, UMass Amherst
Social Identity and its effects on Leadership Ability

Social Identity is a term used to describe the various traits to which an individual identifies. For example, an individual
can identify with all or one of the following: race, gender, state of ability and/or language. Thus, given social identity’s definition, it is natural to wonder what are the effects of social identity on an individual? In this study, I research the effects that social identity has on leadership ability among high school students. Specifically, I explore social identity’s direct effect on pride and how pride connects to leadership. I conduct my research through an ethnographic lens in that I observe and interview a culture-sharing group. Moreover, I conduct a series of dialogues and individual interviews with students and faculty of New Leadership Charter School in Springfield, MA. During these dialogues and interviews, we speak about social identity, stereotypes, opinions and personal experiences. I conduct my research alongside my classmates from the honors thesis course: Communications 499 Dialogue, Discourse, Identity and Community under the supervision of Leda Cooks.

45 Room 911 1:30-2:15 Panel 3
Emily Mergel
Leda Cooks (Faculty Sponsor)
Department of Communication, UMass Amherst
Dialogues on the Phenomenological Experience of Social Difference through Art by Western Massachusetts Secondary Students

When analyzing social identity and difference in group dialogue, axes such as race, gender, and class are addressed for their capacity to illuminate the effects of privilege and inequality experienced by participants. Art, due to its nature as a subjective medium, is sometimes suggested to be a bridge for social difference, but the manner through which such constructions are built in individual minds is little studied. Middle and high school students who had expressed interest in dialogues on social identity and difference at two sites in Western Massachusetts were asked to consider the relationship between their own personal and social identities and how those identities affected their past interpretations of and interactions with various subjectively created media. Through personal storytelling in group dialogue, the students address the phenomenological experience of recognizing and navigating categories of social identity and difference in their interactions with media texts. This research thus examines the way cultural creations are being read for their social charge and content by the students at these sites, illuminating the degree to which these students consider social categories when personally reflecting on media works. It will also expand the literature on the social function of art for children of these age groups and demographics, while exploring the way art functions as a medium between constructs of personal and social identity for audiences.

46 Reading Room 10:40-11:25 Panel 2
Stephanie Messina
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
The Power of Love: the Importance and Implications of Compassionate Communication

The holistic medicine boom of the last fifteen years has given rise to increased awareness of intimate relationships’ ability to affect well-being. To what extent does the quality of communication in intimate relationships harm or heal? Studies from the disciplines of Health Psychology, Neurology, Psychoneuroendocrinology, and Communication give evidence to physiological as well as relationship degradation under hostile communication. Contrary to these outcomes of decline are the increase in social connectedness and physical well-being associated with compassionate verbal and non-verbal communication and Loving-Kindness Meditation. Indeed, the power of love changes the brain as can be seen in research on Loving-Kindness Meditation, and compassionate communication has advantages over hostile communication in regards to the body and relationship health. Implications for self-talk, parenting, and communication at work are discussed as practical applications of these findings.

COMMUNITY OR PUBLIC SERVICE

47 Room 911 1:30-2:15 Panel 3
Charlene Canuel
Jennifer Boulay (Faculty Sponsor)
Department of Community or Public Service, Bristol Community College
Identifying Strategies for Promoting Civic Engagement to the Non-Engaged Student
As a student at Bristol Community College, I was unaware of the opportunities available which create an altruistic environment on campus. If I am unaware, how many other students are also unaware? For this descriptive study, BCC students were surveyed about their level of civic engagement, their knowledge of civic engagement and opportunities available to them on campus, and barriers to participation for non-engaged students. A literature review of best practices for civic engagement and the current civic engagement landscape in Massachusetts was performed. Recommended strategies for recruiting non-engaged students and findings will be shared with workshop participants.

48 Room 908 10:40-11:25 Panel 1
Maura Coyle
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Exploration of Sex Education Policies and their Levels of Effectiveness

Sex education has become a sort of taboo in our country, despite the research that reflects the incredible results that stem from student access to medically and scientifically accurate, age-appropriate, inclusive information that openly discusses sexual education in the classroom. The notion of sex education is not a new one, but the extent to which it is discussed has evolved more and more over recent years. Using scholarly research through the University of Massachusetts Amherst library database, current legislative bills, past legislative bills, and Planned Parenthood of Massachusetts, this project examines the differences in various sex education policies and the implications that consequent from each. The three focused sex education policies are abstinence-only, abstinence-plus, and comprehensive sex education. From the sources used, it has been determined that comprehensive sex education is the most inclusive, medically accurate, and overall effective compared to the other policies explored. Ideally it would be best for states to implement comprehensive sex education for the students, however, any sex education has been proven to be better than none. The consideration of different cultures and religions over the context of the country presents a hindrance in the implementation of comprehensive sex education for every state. In total, by the conclusion of intense research, comprehensive sex education is the optimal option in ensuring that students receive the utmost effective education surrounding the topic. To this end, this project will also focus on the attempts to and effects of politically organizing Massachusetts voters to push for more comprehensive sex education in their state classrooms.

49 Room 101 11:35-12:20 Panel 2
Tim Enfield
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Engage, Facilitate, and Develop: A Three-Pronged Campaign to Increase Employment Opportunities for Youth with Disabilities

Despite the impact of the American with Disabilities Act (ADA) of 1990, progress towards equitable employment options for people with disabilities has been slow. According to the National Council on Disability, only 1 in 4 disabled American youth are employed, as opposed to 6 in 10 for able-bodied peers. This researcher’s previous work explored the relationship between employers, community-based organizations (CBOs), and the disabled youth. It became evident that despite the benefits provided by available services, a disconnect between these stakeholders still exists. In order increase the employment opportunities for disabled youth, this divide must be rectified and these three groups must collaborate more. Youth will see greater employment if and only if groups seek more efficient and trusted ways to identify needs and add value in the workplace. This project developed three key strategies to work towards this goal, each specifically targeting one of the stakeholders. Working alongside Easter Seals “Don’t Dis Ability” campaign, disabled teenagers will explore their abilities and expand personal self worth through extracurricular activities and campaigns to install tangible changes within their own community. For CBOs, this researcher will seek to facilitate a simpler sharing of best practices regarding employment programs. Finally, small businesses throughout Western Massachusetts will learn about the financial and social value disabled employers can add to their business. Through a lens of academic research and disability social theory, strategy outcomes will be analyzed, and recommendations will be made on how to capitalize upon and expand the impact of the project.
It is no secret that Amherst is a great place to be a student with the bustling town center, variety of bars and restaurants, and countless local businesses. In 2011, Amherst was rated the number one college town in North America based on its New England beauty and the rich culture and energy it maintains. At the same time, it can sometimes be difficult to remember that it is not a community solely consisting of students. In addition to students, Amherst is home to nearly 20,000 residents. As is true in many college towns, campus and community members struggle to find common ground. After attending several Amherst community meetings, I saw the importance of bringing students and residents together to enhance communication between the two groups. As part of my capstone experience, I used a community-organizing framework in order to strengthen relationships between off-campus students and local residents. For this presentation, I will describe the organizing process and, discuss successes and challenges, and present next steps.

This presentation provides an overview of my capstone project. I will first briefly discuss the issue of student debt and then discuss the challenges and successes of my organizing project. During the Fall 2012 semester, I conducted a policy analysis of the issues surrounding the issue of student debt. Forty years ago, student loans barely existed; today, however, Americans borrow up to ninety million dollars a year to attend college, and the average college graduate owes $23,000 in loans. These staggering numbers have led to an entire generation being burdened with debt, and affected by the modern phenomena known as the "student debt crisis." In the Spring 2012 semester, I organized UMass students in order to address the problem of student debt. I worked with a team of organizers at UMass on outreach, recruitment, and registration for a Lobby Day at the Massachusetts State House in Boston. The purpose of this lobby day is for students to engage in dialogue with their local representatives and senators about the issue. To place my organizing in context, I draw from the work of organizing theorists such as Marshall Ganz and Sim Sitkin. My work is part of a larger national movement to end student debt and increase funding for public higher education nationwide.

As the economic situation in Massachusetts has changed over the past few decades, the percentage of public higher education costs that the state has been able to subsidize has drastically decreased. In wake of this decreased investment by the state, public colleges and universities have had to seek new avenues for funding every aspect of their institutions. The bulk of this fiscal burden has, in large part, been shifted on to the shoulders of students, leaving them with debilitating amounts of debt and significantly changing public higher education. Issues such as who can attend, how much they pay, which services are available to them, and who teaches the majority of their courses are rapidly shifting. This study explores and documents the process of organizing an opportunity for the students of the University of Massachusetts system to lobby their representatives and senators at the Massachusetts State House for more funding for public higher education. This will include scheduling appointments with representatives, senators, and staff, engaging in outreach to students on four different campuses, handling logistics, and training the participating students in effective lobbying. Additionally, it will explore the dynamics of interaction among the organizations and people working on this event.
Since 1921, heart disease has been the leading cause of death in the United States. In 2010, nearly 600,000 U.S. adults died of heart disease, while 27.1 million U.S. adults were diagnosed with heart disease. Scientific studies have found evidence that cardiovascular disease is directly correlated to a high salt intake. Ninety percent of Americans consume more sodium than is recommended by the Institute of Medicine. The United States Food and Drug Administration currently identifies salt as a “generally recognized as safe” (GRAS) ingredient and therefore places no restrictions on the amount added to processed foods. Creating policies to reduce consumption of sodium is paramount in order to reduce the incidence of heart disease in the United States. In describing my work on a yearlong capstone project, I will first articulate findings from a policy analysis. I will then discuss my process for organizing both students and Dining Services administrators to decrease sodium consumption within the local community. I will discuss the application of Professor Marshall Ganz’s framework for community organizing to develop a strategy that effectively promotes and reduces public consumption of sodium on a college campus. I will lastly discuss lessons learned from this organizing project and how the strategy can be used to help reduce sodium consumption among the general public.
Presenters • Oral Sessions

is hope because students are organizing to end these detrimental measures I am organizing students, communities, and workers to end student debt. This research examines traditions of organizing people power, and change in relation to the student debt crisis. In doing so, the study of past victories and failures will lay the groundwork for an organizing project in Massachusetts around student debt as an issue facing students, families, communities, and the nation.

56 Room 101 10:40-11:25 Panel 1
Anna Petsching
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
The Food Gap

Every day families in the United States are forced to ask themselves where their next meal will come from. What will they eat? Where will they get it? How much will it cost? This final question most prominently defines the choices people make. Strawberries are expensive but instant noodles are cheap; tomatoes expensive but potato chips cheap. This trend - expensive, healthy, nutritional food being financially inaccessible as compared with cheap processed food - can be found throughout the entire food system. From a legislative perspective, there are numerous causes for these ill effects including agricultural subsidies, the structure of food supplement programs, and more general inequalities found throughout the structure of our society. Following this definition of the problem, next steps include working to alleviate, with the hopes of ending, problems of food insecurity in the United States. General opinion most often defines the laws of the land, thus, working to ensure this population is well educated in issues of food insecurity will enable this same population to put pressure on current legislation for the ultimate betterment of the policies that come to define our lives. Through organizing to define legislation, the gap in food prices can be decreased, making healthy food more affordable to the food insecure and therefore eliminating the question of price that so often defines food choices.

57 Room 168 2:30-3:15 Panel 4
Alesia Razumova
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Media Education Policy: Redefining Literacy in the Modern World

In a world defined by rapidly evolving technology, emerging applications and new forms of entertainment, it has become more and more evident that students in America have had relatively few chances for formal media literacy training. The field, relegated to specialized and higher education, has been pushed to the sidelines in the national education system. As a result, today’s learners perceive much of the media they consume by its surface qualities. Consequently, little effort has been made to expand curriculum to encourage further critical inquiry, something that could be made possible with expanded monetary aid. By utilizing Marshall Ganz’ framework for organizing, I plan to apply both readings and theory explored in my Capstone to address the issue of media literacy. I will outline the strategy for a campaign that will bring increased awareness and greater funding for media literacy. The overall goal of this organizing project is for students from across age groups to gain greater access to the tools needed for critiquing media and understanding the crucial role of media in shaping one’s identity. I will share the lessons learned from trying to organize students around this issue.

58 Room 162 10:40-11:25 Panel 1
Kathryn Rivard
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Childhood Obesity in America: Too Much Food and Not Enough Activity

The United States enjoys some of the highest standards of living of any nation at any time in history; however, the high standard of living does not bode well for the citizens’ health. This is particularly evident due to the rising rates of childhood obesity, which threatens millions of children and poses alarming consequences for their lives. Two leading causes of this frightening epidemic, poor nutritional choices and low levels of physical activity, are considered to be key factors. A detailed public policy, proposed following an examination of current and previous attempts to solve this problem, is outlined herein as a possible method to end the shocking rise in childhood obesity and reverse this
unhealthy national trend. Additionally, this project also employs Marshall Ganz’s method of organizational learning to propose a solution for this rising and urgent epidemic. The proposed solution intends to implement a physical activity program with a nutritional focus in a local elementary school based upon a successful program already in place in Western Massachusetts.

59 Room 909 3:30-4:15 Panel 5
Brien Spier
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Clean energy used by cyclists compared to daily travel in Westfield, MA

Regardless of whether area is rural, large city, or poverty plagued area, there are always bicycles present in society because of the multi-purpose uses and the low maintenance fees for such a reliable form of transit. Due to the location of Westfield State University being 3 miles from downtown creates a barrier between travel methods. Those commuters are forced between taking the bus and finding a ride to and from school every day. Considering the fact that there are 1,700 commuters at the university and there are no bike lanes or bike paths that would allow for safe travel without fear of drivers running cyclists off the road. The roads in Westfield are not only clogged by commuters in the morning, but also by local school busses and workers traveling through the town to get to work every day. These roads are being used by an abundance of cars and the most efficient form of travel, by bicycle, is very dangerous on narrow roads and provides drivers with very little warning to their movements. A survey was taken to investigate the preferences of commuters and their preferred form of transit daily as well as how they prefer to exercise. This survey will establish the need for safer bicycle travel and provide those who choose to ride a bike to school every day with rights to spend their money how they please weather it’s spent on food or gas should be up to the commuter, not the size of the roads. If there is a bike lane on Western Ave and the other main streets, there could be a larger variety for transit based on your own personal choices.

60 Room 908 10:40-11:25 Panel 1
Zoe Talkin
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Organizing Against Rape Culture on the UMass Campus

A rape culture is a culture in which rape and other forms of sexual violence are prevalent and the dominant ideologies, norms, media, and behaviors normalize and socialize people into a system of sexual violence. Rape culture is an important component of patriarchy and is part of the hegemony of the United States, manifested throughout nearly every aspect of the society. It is reflected through television, music, advertising, law, humor, art, and other cultural apparatuses, to such an extent that violence against women and sexual coercion seems normalized and rape appears inevitable. What is most sinister about rape culture is that it is so thoroughly ingrained into our collective consciousness that many people may be subliminally complicit in perpetuating harmful behaviors, social norms, and discourses. This presentation will focus on the development of the University of Massachusetts Amherst’s Coalition to End Rape Culture, a group that was formed during the 2012-2013 academic year in direct response to horrific acts of sexual violence that affected the campus community. Tracing the Coalition’s story from its inception through peaks and pitfalls and onward to the Week of Action Against Rape culture and beyond, this presentation aims to elucidate the process of developing a community-based organization and hopes to bring to light the story of students organizing their own community to fundamentally transform its culture.

61 Room 162 11:35-12:20 Panel 2
Emily Taverna
Gloria DiFulvio (Faculty Sponsor)
Department of Public Health, UMass Amherst
Dismantling the Relationship Between Homelessness and Mental Health

In this presentation, I will provide an overview of my capstone project. In the Fall of 2012, I completed a policy analysis of mental health and how current policies contribute to the pervasive issue of homelessness within the United States. With approximately six percent of Americans suffering from mental illness, this population is oftentimes more
vulnerable to homelessness due to difficulties with basic tasks that the non-mentally ill often take for granted, such as personal care, holding a steady income, and maintaining personal relationships. Approximately one third of the homeless population within the United States suffers from mental illness, and the daily stresses that come with living on the streets most likely exacerbate these conditions. It is of the utmost importance to society that the relationship between mental illness and homelessness is weakened as it is costing communities a great deal of money in public services such as hospitals and jails. I outline potential policy alternatives that could be implemented in order to combat this issue, including housing first models, strengthening community mental health centers, and reforming hospitals. In the second portion of this capstone project, I utilize Marshall Ganz’s framework for organizing in order to outline a process through which this change in policy could take place. By combining theory, action, and motivation, I will perform three organizing acts that will mobilize people to create change surrounding these issues. I will discuss some of the key components to becoming a good organizer, such as sharing personal narrative, identifying the constituency, developing relationships with members of that constituency, and developing strategy. Finally, I will reflect on the policy analysis and organizing process and share the key learning from this experience.

CRIMINOLOGY

62 Room 911 11:35-12:20 Panel 2
Carmen Bordonaro
Jane Xinxin Zhang (Faculty Sponsor)
Department of Geography, Fitchburg State University
Mapping Hotspots of Crime and Traffic Violation in Fitchburg — a REDI-FPD Project

This mapping project is a critical component of the DDACTS program at Fitchburg. DDACTS stands for “Data Driven Approaches to Crime and Traffic Safety”. The goal of DDACTS is to reduce the incidence of crime, crashes, and traffic violations. This research project is focused on mapping and identifying “hotspots” in crime patterns and traffic accidents using GIS. The project progressed in three phases. Phase I, crime and traffic violation data stored in various formats at the FDP (Fitchburg Police Department) database were collected, cleaned, reorganized into quarterly data. Phase II, the tabular quarterly data were imported into a GIS through geocoding, a process of transforming locational information, such as street addresses, into visual representations in a map. Phase III, the geocoded data were analyzed using certain algorithm to produce hotspot maps of crime patterns and traffic accidents. The resulting maps offered visual and spatial references to FPD, and thus would help police officers to deploy law enforcement and other resources effectively and efficiently. This project was a joint effort between FPD and REDI (Regional Economic Research Institute) at Fitchburg State University.

DANCE

63 Room 917 10:40-11:25 Panel 1
Alicia Knight
Caitlin Corbett (Faculty Sponsor)
Department of Dance, Salem State University
Naked Dancing: Women’s Bodies in Contemporary Dance and Entertainment Dance

What role does dance play in our attitudes towards women’s bodies? Where is the line between art and entertainment in dance? The objectification of a woman's body has become a generally accepted phenomenon in mainstream culture, particularly in entertainment dance. In the music video “Dance For You”, sung and performed by Beyoncé, choreographer Sheryl Murakami creates pelvic-thrusting movement for a group of female dancers dressed in tightly fitted dresses, designed to capture the attention of the male gaze. This style of dance is disrespectful to women’s bodies, setting an unhealthy model for young girls and women to aspire to as they navigate their self image regarding sexuality and their desire to be “sexy”. Contemporary dance takes a vastly different approach in its representation of women’s bodies. For example, Jiri Kylian’s “Bella Figura”, choreographed to music by Guiseppe Torelli, neutralizes the genders by costuming male and female dancers exactly the same; topless with long red skirts. The abstract nature of the choreography further removes the audience from gender stereotypes, encouraging the viewer to bring his or her own experience to the dancing. The different attitudes between these two styles of dance regarding women’s bodies are profound. Dance in entertainment tells us exactly how and what to think, proposing a bleak model that degrades women and caters to men. However, contemporary dance offers us the possibility to move beyond popular culture’s
narrow standards and provides us with a more inclusive outlook; respect for our bodies and empowerment of personal experience, laying new ground for women to redefine what “sexy” is.

ECONOMICS

64 Room 908 2:30-3:15 Panel 4
Tarik Buxton
William O’Brien (Faculty Sponsor)
Department of Economics, Worcester State University
The Relationship Between the Coffee Market and Global Income Distribution

This study explores the effects of price volatility in the coffee market and how coffee producers are affected by changes in price. The relevance of this subject is rooted in the coffee crisis, a product of the deregulation of coffee prices. Formerly administered by the International Coffee Agreement, decades of relative price stability by way of export quotas was traded for free market price discovery. After an extended adjustment period that saw a sharp downward trend in prices, the price of coffee recovered albeit with greater volatility than during the period of price regulation. Considering the increasing nature of global income inequality, understanding how producers of a primary product such as coffee are performing relative to other manufacturers could provide avenues to enhance the economic stability of a large portion of the developing world. A true explanation of the relationship between coffee demand and price involves proxy independent variables for demand and supply and a measure of variable cost. The dependent variable retail price was hypothesized to be a function of twelve possible explanatory variables. Regression analysis was used to determine the relationship between the consumer price of coffee and independent variables including the international coffee price and a proxy variable for production. Considering a theoretically small temporal variation in coffee demand and the relative price inelasticity of supply, it was expected that coffee inventories would show greater statistical significance as this variable is more likely to directly influence production levels. The results of this study show a significant correlation between inventory levels and changes in price. Finding the source of price instability can help drive policy decisions to address price transmission asymmetry. The issue at hand is that lower prices to farmers do not appear to translate to lower prices to consumers for roasted coffee beans.

65 Room 168 1:30-2:15 Panel 3
Maheen Iqbal
James Boyce (Faculty Sponsor)
Department of Economics, UMass Amherst
The Issue of Mega-Dams in Pakistan: Political, Economic & Environmental Perspectives

Dams, especially big dams, are a contentious issue in Pakistan. The adverse environmental and socio-economic effects of previous projects, such as Tarbela Dam on the Indus River - the world’s largest earth-filled dam - have turned several constituencies against constructing any additional ones. Drawing from academic literature, reports from international and non-profit agencies, newspaper articles, and primary interviews, this paper assesses the impacts of mega-dam projects in Pakistan. The focus is on the interconnected effects on the environment, the economy, and politically marginalized communities. The role of the international community in promoting such projects is explored, and viable alternatives are presented.

66 Room 811 10:40-11:25 Panel 1
Thomas Kelley
Susanne Chuku (Faculty Sponsor)
Department of Economics, Westfield State University
The Economic Impact of an Invasive Species in an Urban Setting

The Asian Longhorned Beetle (Anoplophora glabripennis; or ALB) is an insect native to China that is currently an invasive species in Worcester, Massachusetts. Like most invasive species, the ALB finds no predators in its new environment and has caused considerable economic and ecological destruction through its appetite for nearly two dozen hardwood tree species. First detected in the city of Worcester in the summer of 2008, the ALB’s discovery has led to the removal of more than 30,000 trees in central MA that were either infested or potential host trees of the insect. Most of these trees had lined city streets and as a result decreased energy costs, sequestered pollutants, and
managed stormwater run-off. This study aims to identify what benefits have been lost in the greater Worcester region from the removed trees. Data for the entire profile of removed and destroyed trees was retrieved based upon a sample of removals in a Worcester neighborhood. Using the program i-Tree Streets, the loss of energy savings, pollution relief, and stormwater benefits were calculated based upon the tree removals. This study can be referenced by policy makers by quantifying the severity of the ALB in hopes of restoring Worcester’s tree canopy with the region’s ongoing replanting program. While the Worcester area has suffered severe damage from the ALB, the findings show that the region can rebound by keeping key economic decisions in mind.

67 Room 101 1:30-2:15 Panel 3
Marc Leger
Michael Enz (Faculty Sponsor)
Department of Economics, Framingham State University
Behavioral Economics in the Sports Industry

When most undergraduate students begin to explore topics in Economics, they discover a world of individual decision makers who maximize objective functions. The decision makers are represented in a manner consistent with homo economicus, assumed to have access to all information and behave rationally. Even though economists as early as Adam Smith have been concerned with the impact of psychology on the decision making process, it has been slow to be incorporated in most economics curriculum and also marginalized when applying economic principles to real world outcomes. In my research, I outline several behavioral economics and apply them to help explain the different decision making processes in the Sports Industry.

68 Room 163 3:30-4:15 Panel 5
Noel McCoy
James Boyce (Faculty Sponsor)
Department of Economics, UMass Amherst
Natural Gas: Issues and Regulations in Western Pennsylvania

America’s commitment to increased energy independence has led to greater domestic investment in the natural gas industry. Aided by technological advances in hydraulic fracturing and horizontal drilling, the natural gas industry asserts itself as a resource that is efficient, profitable, and environmentally cleaner than its coal counterpart. This thesis analyzes issues and controversies that have arisen in gas drilling in Western Pennsylvania, one of the first regions in the country to embark on large-scale hydraulic fracturing. An examination of the environmental concerns over the fate of fracking fluid sheds light on the reasoning behind the city of Pittsburgh’s 2010 ban on local gas drilling. The city’s regulation has precipitated a larger conflict over natural gas regulation and what jurisdictional player (local, state or federal) has the power to implement and enforce regulations on the industry. The resolution of this conflict will have important consequences for the direction of America’s energy future and its implications for citizens, government and global energy strategies.

69 Room 163 3:30-4:15 Panel 5
Victoria Pfenninger
Christine Crago (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
What is the value of the cheetah as a species to UMass Amherst students?

Cheetahs are currently listed as vulnerable by the International Union for Conservation of Nature, yet no drastic measures are being taken to help conserve this majestic animal. Although I personally place a high value on the existence of the cheetah, the majority of people may not do so. The goal of this study is to determine how much college aged students value the cheetah as a species. To get data on how people feel about the species as a whole, I distribute a Contingent Valuation survey about the value of the cheetah to University of Massachusetts and Boston University students. The demographic for the study is mainly college aged students, and while this isn’t representative of the entire country, it allows me to focus on educated young people. The survey asks respondents about their willingness to pay (WTP) for cheetah conservation. I also examine the relative valuation of the cheetah relative to other endangered species, like the panda bear and the Kauai wolf spider. Furthermore, I examine how income, field of study, and perceptions about how endangered the cheetah is relative to other species affect WTP for cheetah conservation.
The results of this study help inform the debate of whether or not effort and resources should be put into conserving the cheetah.

70 Room 101 1:30-2:15 Panel 3
Anthony M Proia  
Brian F Gomola  
William Raich  
Christine Crago (Faculty Sponsor)  
Department of Stockbridge School of Agriculture, UMass Amherst  
Economic Analysis of Sustainability at the University of Massachusetts Amherst

The University of Massachusetts Amherst received a Gold rating from the Sustainability Tracking Assessment Rating System (STARS) in 2011, joining just 15 other universities at the time to receive the accolade and providing tangible proof of its commitment to reducing energy consumption, minimizing carbon emissions, and purchasing more local food products. Striving to be the first higher education institution to obtain a Platinum rating for its environmental efforts, the university is now looking at innovative ways to reach Platinum in a cost-effective manner. This study evaluates student commitment to sustainability on campus and the costs and benefits of two separate projects in student housing to help the university in its sustainability efforts. Student commitment to sustainability is measured through a Contingent Valuation survey given to a sample of students asking for their willingness to pay for greater sustainability on campus. In the past, students supported increases in fees to fund sustainability projects; the results of the survey are expected to reflect this financial commitment. Cost-benefit analyses of a sustainable model dorm room and of energy efficiency measures in the North Village Apartments will be used to assess the net benefits of these projects to the university. Benefits include cost-savings, increased awareness of sustainable behavior reductions in carbon emissions, and specific credits in STARS. By conducting cost-benefit analyses of these two projects, this study provides both a framework for the university to evaluate future projects and financial reasons to implement similar projects on a larger scale.

71 Room 168 1:30-2:15 Panel 3
Luke Seaberg  
James Boyce (Faculty Sponsor)  
Department of Economics, UMass Amherst  
The Cartoneros of Buenos Aires: Cooperativism and Environmental Benefits

The cartoneros (literally cardboard-ers) of Buenos Aires, Argentina, recycle paper and other materials, providing a valuable environmental service at low cost in a city that historically has had problems with solid waste management. More and more of Argentina’s unemployed and underemployed working class have turned to alternative forms of generating income in the wake of the country’s economic collapse of 2001. Drastic capital flight, massive layoffs, and few solutions from either government or private companies have led to stagnation in the job market. Many workers have opted to earn a living outside formal economic channels, collecting recyclables and other valuable items from the municipality’s trash and dump sites and selling these to transfer centers, citizens, and companies that use postconsumer material in their production processes. Following the lead of the recuperated factories movement in Buenos Aires, many of these cartoneros have organized into worker cooperatives, seeking greater recognition, rights, and even pay from the city government. Their experience illustrates how worker cooperatives can not only benefit their members economically and socially, but also benefit the city as a whole.

72 Room 908 2:30-3:15 Panel 4
Matthew P Wilbur  
Michael Szajner  
Luis Rosero (Faculty Sponsor)  
Department of Economics, Fitchburg State University  
Argentina and the United States: Sustaining Bilateral Trade in the 21st Century

This paper examines two current trade disputes: DS444 (non-automatic import licenses for Argentina by the United States), and DS448 (import restrictions on fresh lemons by the United States filed by Argentina). An extensive examination of current macroeconomic conditions in both of the nations, as well as a comprehensive trade history and
relations between the two nations lays the framework for the analysis of the disputes. The goal of this analysis is to provide the source of the issue as well as the loss of welfare that trade- barriers and disputes can have on these two nations. This paper concludes by considering the implications of these types of trade disputes for future bilateral trade relations between the two countries.

73 Room 168 1:30-2:15 Panel 3
Jonathan Wolf
James Boyce (Faculty Sponsor)
Department of Economics, UMass Amherst
Carbon Cap-and-Trade Impacts on Firm Profitability

Market-based cap-and-trade systems for carbon emissions are designed to increase the costs of fossil fuels to firms and consumers, thereby giving them an incentive to pollute less and invest in greener technology. Firms are expected to alter their business plans, as their current model will no longer be profitable in the future. This paper examines the economic effects of a cap-and-trade system on a firm, and asks whether or not a firm can actually make greater profits by participating in the system. A critical issue is the scope for “cost pass through,” raising prices to consumers so as to partially, fully, or more-than-fully reflect the market value for the emission permits. Information is drawn from interviews with employees of cap-and-trade governing bodies as well as firm managers, and empirical evidence is drawn from a case study of firms involved in the Regional Greenhouse Gas Initiative (RGGI) in the northeastern United States.

EDUCATION

74 Room 163 11:35-12:20 Panel 2
Lauren Denio
Vanessa Diana (Faculty Sponsor)
Department of English, Westfield State University
Teaching Tolerance: Emphasizing Acceptance in a Diverse Classroom

The United States has long been a nation of diverse peoples. The early European conquerors clashed with the Native Americans upon first settling here. The slave trade brought millions of African Americans to America, and immigrants poured into the New York harbor by the thousands in the mid-1900’s. There has been much upheaval over the differences of all of these people coming together, often leading to conflicts as serious as war. Today, we are making great strides in our understanding of various cultures thanks to technology allowing communication on a global scale. However, any parent or teacher of young children knows how mistakenly insensitive they can be. How do we go about teaching children to accept the differences in everyone they encounter? Developing these social skills in early childhood is critical to their success, and continuing to emphasize the importance of tolerance in elementary and high school reinforces the significance of a caring community. When we work to explicitly teach tolerance in all classrooms, the outcomes will likely be more tolerant children and mindful adults. However, if teachers and parent neglect to teach tolerance and do not value its explicit instruction, than how can we expect future adults to be understanding and open-minded? This presentation will include a brief research review regarding the value of teaching tolerance in schools and draw conclusions on the best practices to implement in the curriculum of pre-kindergarten through high school classrooms. It will also include a more extensive, interactive component to give caretakers and teachers of children some strategies to implement.

75 Room 808 10:40-11:25 Panel 1
Eric Frary
Jennifer Hanselman (Faculty Sponsor)
Department of Biology, Westfield State University
Student Knowledge and Attitudes Towards Sustainable Energy in the Westfield Public School District

In an attempt to improve scientific literacy in the United States, the National Science Teacher Association is developing the Next Generation Science Standards (the next draft of which is due out in March 2013). These are a new set of guidelines that will be used to teach and monitor science learning at the K-12 level. The new standards have a strong focus on renewable resources and human sustainability, in stark contrast to the Massachusetts Curriculum Frameworks. It was the goal of the project to survey students about their knowledge and opinions about sustainability
and renewable energy knowing the students were a product of the Curriculum Frameworks. Westfield Public School students in grades 6-12 were given the survey after obtaining parental permission (per IRB approval). It was found that there was no significant difference between the knowledge of these ecologically-important concepts and grade level (the lowest grade category, grade 6, was the only group significantly different from the rest). However, there was a significant correlation between the knowledge of sustainability and renewable energy and having a “positive” opinion about these concepts/technologies. Following the analyses, lesson plans were written and correlated to both the current science standards and the Next Generation Science Standards in an effort to reduce the knowledge gap. The lessons utilized a variety of instructional approaches including inquiry, discovery learning, the 5E learning model, and problem-based learning. Lessons were organized into a thematic unit about sustainability and renewable energy and distributed to teachers in the Westfield Public School District.

76 Room 808 10:40-11:25 Panel 1
Molly Hillis
Michelle Cheyne (Faculty Sponsor)
Department of French, UMass Dartmouth
Expected and Expectant: Addressing the Economics of Education

Expected and Expectant: Addressing the Economics of Education Molly Hillis Abstract Expectations for the American student have significantly increased in the modern era. Remaining competitive is vital to attaining a significant place in society. However, as the need to diversify grows, there is also a great disinvestment in education. This, coupled by the American economic crisis of the last decade, has highlighted one particular aspect of society: economic classes. Many who cannot afford the standards of education that Americans have become accustomed to find themselves at a definite disadvantage when they enter the workforce. With fewer credentials than their counterparts, many find themselves at the mercy of their job, working off excessive student debt and unwillingly perpetuating the influence of economy. This flawed system is mirrored in the observations of Pierre Bourdieu, a French sociologist who views education as an instrument of “cultural reproduction,” or emphasizing the economic classification of a people. Similarly, American philosopher Dr. Noam Chomsky states that public education is used by those in power to actually limit public knowledge while keeping society subservient. Using the works of Bourdieu and Dr. Chomsky, this study looks at two questions: how public and private American education systems function, and how the student fits into the system. The project evaluates the shortcomings of the American education system at all levels, including issues directly relating to economic factors. In particular, it focuses on the stakes and consequences of rising educational expectations in a society where costs of education rise as well. The research is designed to lay out the theoretical and methodological groundwork necessary for a comprehensive assessment, and is meant to provide insight into a multifaceted and extensive national issue.

77 Room 903 1:30-2:15 Panel 3
Arianna Jefferson
James Grady (Faculty Sponsor)
Department of English, Bristol Community College
Which philosophy is best?

This presentation examines the effectiveness of three very different public school philosophies and curricula: Montessori, Reggio Emilio, and the United States public school system. Starting with the founders of each of these programs, their philosophies of and the approach to teaching children in these programs will be assessed as well as, the age range and, if any, the restrictions on children that want to be enrolled in these programs. Goals for students, methods used for instruction and teacher’s education will be explored for each of the three, highlighting what is unique to each program that makes it special.

78 Room 809 2:30-3:15 Panel 4
Lauren Nastari
Vanessa Diana (Faculty Sponsor)
Department of English, Westfield State University
Testing 1,2,3: problems with standardized tests and suggestions for improvement

Standardized testing is a topic that has been under a lot of scrutiny lately as the early generations of No Child Left
Behind (NCLB) have progressed further through the American educational system. The goals of NCLB were to ensure that each student, regardless of race, wealth or location, would learn the same information at the same time. However, the true success of this initiative is questionable. The effects of this enforced bill are not as positive as one would hope. The purpose of this essay is to question the morality of these high-stakes exams, whether or not they are truly fair, and what we should do about it. Articles by a teacher and reporter as well as a speech by best-selling author and speaker Sir Ken Robinson were used in this essay to display the true faults and inequality of these tests. The problem with the standardized tests currently in use is that they degrade abstract thought and creativity and also favor the racial majority, white children, putting minorities at a disadvantage. They also place an immense amount of pressure on students to do well, and they put an emphasis on breadth of coverage over depth of understanding. It is important to measure the progress of all students in order to make sure they are all learning the material designated to their age group. However, the way in which we measure this should change so that the test allows for creativity, abstract thought, and ideas that incorporate real-life connections. In order achieve these goals, we need to formulate a new type of test that successfully fulfills the intents of No Child Left Behind without all of these negative consequences. In conclusion, standardized tests are poorly crafted and lead to many problems that can be resolved with the creation of a new test.

79 Room 808 10:40-11:25 Panel 1
Jesse Wright
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
The Sustainable Affordability of Public Higher Education in Massachusetts

The affordability of public higher education in America can be officially titled a national epidemic. Our nation’s $1 trillion student loan debt has surpassed credit card debt and continues to rise. Stafford loan interest rates perilously hang in the balance between a current 3.4% and a proposed doubling to 6.8% by June 2013, making it more expensive to go to college than to buy a house. First, I used the most current five years of budget and financial data from the Massachusetts state budget office, the UMass system office, and the UMass Boston budget office. Then I comparatively analyzed Massachusetts’ rising costs of tuition and fees versus the other 49 states for comparative rankings and identified that the combination of decreased state funding, increased enrollment, decreased purchasing power of universities, and necessary expansion at the university level mandated systemic increases in tuition and fees. This cause had additional effects on students who took even larger loans in the face of the impending doubling of interest rates. In order to reverse these trends in Massachusetts, the Massachusetts legislature must pursue additional and alternative revenue sources, allocate that additional revenue towards public higher education, and guarantee to do so for a sustained period of time. Programs like Social Financing, university level student equity stake programs, and expanded, more aggressive loan forgiveness programs at the state level should be explored and might reverse the increased burden on students.

ENGLISH

80 Room 176 1:30-2:15 Panel 3
Bradford Avery
Glen Brewster (Faculty Sponsor)
Department of English, Westfield State University
Slow and Steady - Original Short Fiction

My creative writing piece is a short story done in the experimental “Crot” format, an archaic term meaning “fractured.” The story employs non-linear, stand-alone paragraphs that come together to create a mosaic of sorts that tells the story of an unnamed protagonist recalling fractured moments of his life. The varying paragraphs, purposefully left without indents, weave together in order to create several episodes within the character’s tale, depicting aspects of the same plots at different times in their progression. My intent with this story is to show the most emotional moments of this character’s life, exploring the memories that have stayed with him, and the fears, pains, the self-doubt and the anxieties that he has felt through each of them. These memories include him as a child at his mother’s funeral, him in college struggling to lose his virginity, and him in the working world stricken with constant headaches which indicate an infection. The frantic moments of his life are contrasted with a recurring dream where he is on a peaceful island surrounded by friendly tribesmen who set his mind at ease. A portrait of a neurotic everyman, his tale bears similarities to those of several people I have known.
81 Room 811 11:35-12:20 Panel 2
Jennifer Boyd
Glen Brewster (Faculty Sponsor)
Department of English, Westfield State University
The Feminine Mystique: The Rebirth of American Feminism

In 2013, one may wonder why we are still discussing a feminist book written in 1963. But the “War on Women” continues today, and it is essential to know our past and where we have come from. Therefore the purpose of this paper is to discuss the continuing relevance of “The Feminine Mystique” by Betty Friedan, one of the most influential texts to come out of the 1960s. Essentially, her book was a call to action and focused on many different topics, such as domesticity, sexual politics, and the need for a rebirth of American feminism. In “The Feminine Mystique” Friedan emphasized that the women of the time then needed to know their past. Friedan describes the “ideal of femininity” as displayed in contemporary women’s magazines, the development of the stereotypes of the American housewife and “nurturing mother,” the widespread acceptance of the dominant male and how these in turn affected women and their children. She shows how contemporary social science contributed to ideas about the “proper” place for women as a “natural” part of the social body. Though Friedan’s text is an important document of its time, many of its concerns are the same general ones that women are coping with today.

82 Room 176 1:30-2:15 Panel 3
Sarah E Comeau
Amanda Buckingham
Annamary Consalvo (Faculty Sponsor)
Department of English, Fitchburg State University
What is ‘the canon’? And investigation into the selection, connection, and relevance of literature in the modern high school classroom

This Honors Thesis project is centered on exploring and demonstrating the impact of teaching literature effectively in our modern schools. It is important to likewise explore, define, and draw connections between the canon’s components and how as future educators we will be introducing and teaching concepts related to the canon. Since the term, “canon” is very broad, we offer our re-thinking of the term, based upon extant literature in light of what we understand as the current and future needs of 21st century high school students. Ways that high school English teachers interpret and select from the literary “canon” were investigated through interviews with teachers as well as online and print resources. Together, these interviews and resources were used to draw connections between how the “canon” was being defined and utilized in comparison to how it could be taught in the 21st century. In this project, The Great Gatsby by F. Scott Fitzgerald is shown as representing the U.S. high school canon and explores what education current high school students can obtain from this novel based on its part in the canon. An overview unit of The Great Gatsby is presented to reflect current best practices and use of the canon in today’s high school classrooms.

83 Room 176 11:35-12:20 Panel 2
Melissa Carella
Keja Valens (Faculty Sponsor)
Department of English, Salem State University
The Rebirth of Chile in Relation to Childbirth and Female Pain

This study is an analysis of two novels written after Augusto Pinochet’s regime in Chile, focusing on their descriptions of childbirth and how they serve as a metaphor for the birth of a new Chile. Isabel Allende’s The House of the Spirits and Diamela Eltit’s The Fourth World emphasize the female characters’ inability to have full freedom of speech, as well as how the burdens of conception (or pregnancy) and childbirth became an infliction on not only their bodies, but on their existence as women in a disadvantaged society. In addition to analyzing the two novels, I will also be examining female social movements during that time period. The study will ultimately address these questions: What are the roles of women’s voices in a disadvantaged society, and what is the relationship between literary depictions of childbirth and female pain in the context of violent oppression?
84 Room 176 3:30-4:15 Panel 5
Kaila Cummings
Michael Filas (Faculty Sponsor)
Department of English, Westfield State University
Father

The purpose of my creative writing piece was to tell a story about a man that has lost hope in life and chooses to go to extreme measures to show this by joining a cult. In my fiction I strive to get under the reader's skin by taking my descriptive prose to a level of intensity. I enjoy the challenge of writing about provocative and transgressive material while trying to modulate the line between sensationalism and exploitation, as well as trying not to make decisions based on fear of censorship. I aspire to incorporate the elements of plot tension and intrigue that normally accompany thrillers and suspense type stories as well as trying to get into the psychology of both my characters and the reader. In my story, the cult promotes incest activity to men who are at a dead-end in their lives, who have nothing left to look forward to. In my piece I took the challenge of making it suspenseful as well as paying attention to plot development, regardless of the reader's taste for sexually explicit material.

85 Room 163 1:30-2:15 Panel 1
Amanda J Hebson
Bartłomiej Bystrzynski
Crystal M Lanucha
Elizabeth D Ulrich
Katelynn R McCall
Caleigh Ducharme-Banks
Chalet Seidel (Faculty Sponsor)
Department of English, Westfield State University
The Impact of Technology on College Students' Ability to Write and their Awareness of Audiences

Our panel presentation examines how college students use technology for writing and how this writing is shaped by awareness of audience. We conducted a group of studies to assess writing researcher Andrea Lunsford's claim that the large amount of writing college students do online, including on social networking sites, has improved their kairos, or ability to adapt their writing to different audiences and situations. Lunsford concluded from her study that “Everyone can be a writer—technology isn’t killing our ability to write, it’s reviving it.” To further examine her statement we split into three groups. One group measured how much technology college students used in writing by surveying over 150 students about their technology use. A second group conducted a survey to determine how explicitly aware students were of the different audiences for whom they wrote. And a third group conducted a textual analysis of e-mail submitted by students to identify the changes students made when writing for different audiences. We concluded from our surveys that the vast majority of college students are using digital technology, like laptops and cellphones, to write. Each of our groups also found that students wrote with confidence when they had a recognized audience, and in most circumstances remained formal, avoiding “text-speak” or grammatical errors. It also became apparent that respondents largely only considered surface level changes in their response to an audience. In conclusion, our study found evidence to support Lunsford’s argument that technology is not harming student’s ability to write successfully.

86 Room 803 10:40-11:25 Panel 1
Emily Faucher
James Foley (Faculty Sponsor)
Department of English, Worcester State University
The Modernization of Hamlet

A sizable shift from written works to visual aids (e.g., movies, television, shows, YouTube videos) has grown out of the perceived need to capture the attention of young people viewing the plays of Shakespeare for the first time. This shift has generated some inventive ways to present a work such as Hamlet so as to make it more appealing to today's youth. In this essay I will compare two different attempts at modernizing William Shakespeare's Hamlet through visual means. In one adaptation, Franco Zeffirelli's film (the Mel Gibson Hamlet), attempts to bring the play to modern audiences primarily by featuring an all-star cast. The other, Peter Wellington's Canadian television series Slings and Arrows, concentrates more on the actors who play the roles than on the play itself. A comparison of the two works will yield
some useful conclusions as to which approach is more likely to draw an audience of young people into experiencing Hamlet.

87 Room 176 1:30-2:15 Panel 3
Jessica Giannino  
Kevin Carey (Faculty Sponsor)  
Department of English, Salem State University  
The Politicians Plight

There are many stigmas attached to the political leaders of today. The comments directed at me when I entered the race for the city council of my hometown, compelled me to think about politicians in a larger spotlight. I was perplexed by the ideals that people believed politicians were supposed to live up to. Being one of the youngest ever to run for the seat of Councilor at Large, created many expectations for me to fill. I entered a new world that caused me to rethink my every action. During this time, I was taking an Advanced Writing class and one of the prompts was to think about a social issue and address it. I saw it as a perfect opportunity to talk and “think aloud on paper” about the unrealistic expectations politicians are subjected to and to give people a different perspective about the process through the eyes of a young, not yet jaded politician.

88 Room 803 11:35-12:20 Panel 2
Sarah Kramer  
Catherine Houser (Faculty Sponsor)  
Department of English, UMass Dartmouth  
Untitled Novel

I will present readings from an untitled novel. The back cover blurb is provided below as an enticement. Before that day, Deion had been able to ignore the reality of death and the existence of evil. Yet, he faced both in the form of his dead father. He was shaken, eyes transfixed on his father's corpse, as an unsurpassable pain shot through his right arm. His family remained a distance from him as the pain increased, tears ripped down his cheeks. Deion had closed his eyes, and saw Aurum, heard his laugh; just before the man's voice quenched the pain: “A deal made, blood exchange, Pass 500 years for interchange, Now, finish the deal, bring my prize, Here, the instructions for your eyes.” That was ten years ago. Now twenty three, Deion Hunter has to face the crimes committed by his family five hundred years in the past before he loses his soul. His family's mission to retrieve the fossilized gem of Aria and kill the Great King's heir has passed to him. With only a limited time left to solve the curse, what will become of the Hunters?

89 Room 168 11:35-12:20 Panel 2
Molly Madigan  
Vanessa Ramos (Faculty Sponsor)  
Department of English, Salem State University  
How the Night Tastes: Fairy Tales Retold

Imagine a literary land where Rumpelstiltskin is an orphaned poet struggling to find her voice; where Hades – a hipster heartthrob, you know, a real artistic type – is seducing all the ladies; where Gretel is an anorexic with multiple personality disorder; and where Little Red Riding Hood is an angsty teenager who discovers a touch of the wolf in herself. In the vein of retellings by Angela Carter, Emma Donoghue, Anne Sexton, and Francesca Lia Block, How the Night Tastes explores the sexual and psychological landscape of the soul through the lens of fairy tales. Firmly rooted in the present – in the cities and suburbs of modern-day America – familiar characters from fairy tales, myths, and ballads try to find their way through the dark forest of adolescence. With the common theme of transformation weaving through the collection's narrative, you will live within these stories, dream them, reimagine them, and come through the mirror transformed.

90 Room 168 11:35-12:20 Panel 2
James Madigan  
Gregg Neikirk (Faculty Sponsor)  
Department of English, Westfield State University  
Persistent Archetypes and Themes In World Mythologies
Like history, oral traditions and belief systems are by nature cyclical. This paper is both an exploration, and subsequent argumentation of the fact that throughout seemingly disparate mythological traditions, there are a number of striking similarities amongst temporally and geographically distant groups. Beginning with the Native American oral tradition, this paper will explore the commonalities in the Native American, Norse, and Greco-Roman pantheons. Through critical literary analysis of the myths themselves, as well as examination and integration of the work of modern scholars and authors, repeated patterns of narrative arcs, similar ideologies, and archetypes are discernible. Further study illuminates these patterns and their effects. Diagonically opposed siblings, the recurrence and consistent mystique around twins, and similarities between deities in vastly different polytheistic mythologies are explored. Realizing the significance of these persistent archetypes, themes, and ideas facilitates further examination of the material, and these implications could resonate in literary, historical, and even psychological contexts.

91 Room 168 10:40-11:25 Panel 1
Kathleen Monaco
Kevin Carey (Faculty Sponsor)
Department of English, Salem State University
Circus

René Descartes’s Meditations on First Philosophy seeks to prove that the mind is separate from the body. Since Descartes recognizes himself as a “thinking thing” whose thoughts do not require a body, he argues that the body and mind are distinct entities. “Circus” is a creative piece that satirizes Descartes’s views by following a modern man who still adheres to them, emphasizing the problems inherent in Descartes’ philosophies when they are tested in the chaos of the real world. It questions not only the theory that the mind is separate from the body, but that it is better and more Holy than the body. “Circus” shows that the body and mind are connected and inseparable, but the main character, lost in his own ego, does not realize this.

92 Room 168 11:35-12:20 Panel 2
Tyler Murphy
Shaun O’Connell (Faculty Sponsor)
Department of English, UMass Boston
The Lost Glove is Happy: The Serendipity of Art, Nature, and the Self in Vladimir Nabokov’s Pale Fire

The focus of this project is on Vladimir Nabokov’s metafictional text, “Pale Fire,” focusing on both the formal and realistic structure of the novel, and the theoretical implications of the work. A metafictional text is one that self-consciously and systematically draws attention to its status as a fiction to pose questions about the relationship between fiction and reality. The research will pose a relationship between three aspects of the novel: how Nabokov’s scientific background is used to validate his aesthetic purpose, how characters in the novel appropriate “reality” (a word Nabokov believes cannot exist outside quotations), and how the structure of the novel reflects Nabokov’s unique vision of “reality.” In a term being referred to as “narrative adoption,” the novel’s narrator, Charles Kinbote, acts as a scholar to obtain the poem of his neighbor, the “famous poet” John Shade. The novel is presented in the shape of a scholarly text with foreword, commentary, and index written by Kinbote. With Shade’s poem wedged in between, Kinbote feigns a “critical essay” with the true intent of writing his own tale, thus adopting Shade’s text for his own purposes. By focusing on both central characters, the structure of the novel, and Nabokov, the questions posed will illustrate Nabokov’s vision of aesthetics and its antithesis, or how Nabokov exposes a central flaw in aesthetic creation.

93 Room 176 3:30-4:15 Panel 5
Kalimah Mustafa
Louise Penner (Faculty Sponsor)
Department of English, UMass Boston
Sexuality in Not Without Laughter

My paper analyzes the representations of sexuality in Harlem Renaissance “poet laureate” Langston Hughes’ novel Not Without Laughter. As a poet, Hughes’ prose is underrepresented in the American literary canon. His novel, specifically, has been paid far less attention to than his poetry in the African American academic discourse, which places an emphasis on his poetry and autobiographies. In novels, however, we have the opportunity to explore characters
much more complexly than there is room for in poetry. By studying the characters in this book (specifically their sexuality—a hot topic in the discourse on Hughes), the paper seeks to add to the discourse by decoding the messages sent through his representations of sexuality in the novel. I do this by careful explication of sexually charged moments in the text, studying the influence of patronage in his artistic decision by looking at autobiographies and personal letters, and studying the influence of the interpreter, as many critics of Hughes impose gay or straight readings of his work depending on their opinion of what his sexual preference was. Through this I find that sexuality in the book is portrayed as a human flaw, as each character's sexuality is their tragic flaw and ultimately leads to their downfall. The male characters' inability to find fulfilling sexual interaction leads them to destruction while the existence of “deviant” sexuality (that is to say, female and queer sexuality) is punished with particular harshness. The influence of patronage on these representations I find to fall mostly in the pressure to represent blacks as primitive, which greatly influences the way Hughes portrays the characters, but not necessarily the way he portrays the complexity of sexuality. This paper adds to the conversation on the most hotly debated issues surrounding Hughes and his work: homosexuality/sexuality, representations of black primitiveness, and white patronage.

94 Room 163 10:40-11:25 Panel 1
Mewe Okoh
Vanessa Diana (Faculty Sponsor)
Department of English, Westfield State University
Sherman Alexie’s Flight As A First Year Read

During the Summer of 2012, Westfield State University implemented a First Year Students to read. The English department wanted to, among other things, give first-year students a more cohesive experience when entering their first year of college. The requirements for a first year read is that it must: be nonfiction, reflect an interdisciplinary perspective, demonstrate contemporary relevance, speak to issues of equity, diversity and/or social justice and utilize academic research. This was the department's pilot of a first-year read, and it was unclear whether the students would respond to the book or if it would unify them as a class. The results were favorable; students responded well to the book and the university even brought the author in to speak at a well-attended public presentation. I am proposing a similar situation with the novel Flight by Sherman Alexie. Though it is a fiction piece, this book is a complex, engaging, and very relevant in its discussion of race relations and economic disparities. For my presentation, I plan to focus on the sociological pertinence of the novel and how it will help enlighten and broaden the thinking of incoming First Years. I will also include input from the author himself with excerpts from an NPR interview.

95 Room 163 10:40-11:25 Panel 1
Via Perkins
Michael Jaros (Faculty Sponsor)
Department of English, Salem State University
Burgeoning Biraciality: What It Means to Be a Young Mulatto in America Today

In the form of 25 open-ended questions, I interviewed six half-black, half-white Salem State University students to seek their uncensored experiences in defining themselves and their world as biracial people. I endeavored to build upon the little existing literature that focused on the complexities of being “mulatto” – a loaded term in and of itself. Transitioning from a once uncommon, disgraced, and shamed community, half-black, half-white individuals now represent the largest group of biracial people in America, which comes with its own modern challenges and triumphs. In the vein of Lise Funderburg’s Black, White, Other, these six narratives weave together a complex tapestry of valuable memories, perspectives, and insights that each of these young mulattos possesses. I will be sharing highlights of these interviews in conjunction with photographs I shot of each interviewee, which add an intimate visual dimension to each narrative. I will also be reading excerpts from my personal introduction to the project, which explains the inspiration for my undertaking as a part of my own biracial journey. Furthermore, it will reveal the benefits of engaging in curious and honest conversations about race – the ways it helps shed light on America’s past, and how it can create more understanding and respect between individuals and groups alike in the present.

96 Room 168 10:40-11:25 Panel 1
Cathryn Roberts
Emilio Sauri (Faculty Sponsor)
Department of English, UMass Boston
Márquez’s One Hundred Years of Solitude and the Metafictional Timeline

This project focuses on the way that time passes, and the metafictional qualities in Márquez’s magical realist novel, One Hundred Years of Solitude. The memory-like writing style of the novel makes the way that time passes for the Buendías uncertain and often indefinable instead of proceeding in a natural, linear progression. However amidst the chaos there is a circularity in the time structure and similarities in the plot that make the Buendia’s story relatable to a circle of mirrors. Like a circle of mirrors the novel’s timeline is based on repeating patterns and reflections that create similarities and recurrences in the plot, demonstrated by aspects such as the repetitive names within the Buendia clan and the family’s proneness to repeating the same mistakes. I will first dedicate my attention to first the developmental process of how Márquez came to write his epic novel, focusing on his journalist background and his relationship with his grandmother and her folkloric story-telling and how both of these contributed to his magical realist style with an emphasis on the passing of time and the ghosts of ancestry. Later I will discuss relationship between the characters and how they interpret time and how time affects their lives throughout the progression of the novel. In resolution to defining how time passes in the novel I will then turn to the interpretation of the last three pages in the novel. With a close reading of the text I will demonstrate that One Hundred Years of Solitude is the manuscript written by Melquieides, and that Aureliano Buendia deciphering Melqueide's manuscript is akin to a reflection in a mirror becoming self-aware and realizing that it is only a reflection. With both of these revelations uncovered I will add new dimensions to Márquez's famous novel and further clarify why “races condemned to one hundred years of solitude did not have a second opportunity on earth.”

97 Room 176 3:30-4:15 Panel 5
Lydon Seitz
Michael Filas (Faculty Sponsor)
Department of English, Westfield State University
Chocolate: A Crot Fiction Story

This presentation will be a brief explanation of the crot fiction format, which is an experimental form of fiction writing that takes several different threads of prose and pieces them together to give it a greater meaning. It will explain some of the benefits and disadvantages of writing in this format, as well as some of the process of writing it. The remainder of the presentation will be a reading of the presenter's short crot story “Chocolate,” which takes loose narratives with the themes of nature and love and weaves them together and contrasts them with short anecdotes, letting the combined whole create a deeper meaning for the listener. While this form is not often found in the mainstream literary publications, this reading hopes to demonstrate its benefits to the whole of fiction writing.

98 Room 176 11:35-12:20 Panel 2
Jennifer Shakshober
Marilyn Sandidge (Faculty Sponsor)
Department of English, Westfield State University
Binary Opposites: Exploring Feminist Discourses on Shakespeare’s Cordelia and Desdemona

Critics of Shakespeare tend to regard the women in his tragedies as either chaste or irredeemably sexual. I argue that modern audiences should read Desdemona as the paragon of virtue she seems to represent and Cordelia as her more realistic counterpart. While at times both characters behave unnaturally, or in a way that deviates from their usual course of action, Shakespeare characterizes Desdemona as an asexual being and Cordelia as a more fully developed woman who is capable of embracing her sexuality. Indeed, where Desdemona seems morally estranged from Shakespeare's audience, Cordelia represents not only a character in literature but a female in the realm of the world, who must plead for and learn by forgiveness.

ENGLISH LITERATURE

99 Room 803 10:40-11:25 Panel 1
Rachel Gelinas
Bartholomew Brinkman (Faculty Sponsor)
Department of English, Framingham State University
Emily Dickinson and her Social Behaviors
In my paper, I will be discussing and analyzing the letters and poems of Emily Dickinson to present at the conference. Viewing her work in terms of her infamous isolating behaviors, I also plan on studying the varying intimate and close relationships she had with family members and friends. As Dickinson seems to be known as a reclusive and sheltered person, analyzing these stereotypes and countering them with her correspondences and poems indicates that at times this assumption was far from true. Dickinson frequently formed a kind of obsession with her peers, often pushing them away, thus resulting in this isolating ideology that surrounds the analysis of her life. While this is true, Dickinson yearned for these intimate relationships but went about forming them in the wrong ways. Though it can be confirmed that the poet was secluded from the world in some aspects of life, studying her close, intimate relationships suggests that she made a conscious effort to attempt to connect with those around her. Breaking my paper into three major parts, I plan on first analyzing the outside factors that led to Dickinson’s isolating behaviors, focusing on her family life and how she became reclusive in nature. Following this, I will discuss the impact of religion on the poet’s life and how it came to be an important force in her fear of being alone. Lastly, a close study of the influential friendships Dickinson had will prove how desperate she was for personal connections, thereby countering the stereotype that has long come with the poet’s background. This set-up will allow me to acknowledge the preconceived notions that are made about her, while then countering them with her primary documents.

100 Room 803 1:30-2:15 Panel 3
Nicole Godard
Marilyn Sandidge (Faculty Sponsor)
Department of English, Westfield State University
Angels and Demons: Shakespeare’s Celestial and Common Loves

What it means to love and be loved has changed drastically over the years. What it means today is not necessarily the same as what it meant for William Shakespeare. For the man who wrote some of the most famous love poetry in the English language, his love had, perhaps, a broader horizon than what modern readers tend to think. This paper explores the love Shakespeare had for both his dark lady and his fair young man and argues that the love found in Shakespearean sonnets, particularly in Sonnets 20, 130 and 144, which examine both the love of a Master and the love of a Mistress, borrows and represents, in the way of neo-platonic Renaissance literature, the dichotomy of the Common and Celestial love described in Plato’s Symposium, drawing a bold line between “good” and “bad,” “pretend” and “proper” love. Close analysis of Plato’s text in conjunction with key Shakespearean sonnets reveals a relationship between the different kinds of love as defined by Plato and the different kinds of love that Shakespeare exhibited for his young man and his dark lady, whom he identified as his good and his bad angels. This perception of love is decidedly different from the earlier Petrarchan standard and a better understanding of it can lend a better understanding of Shakespeare’s sonnets, Renaissance love, and the Bard himself.

101 Room 168 10:40-11:25 Panel 1
Christopher Johnson
Rosanne Denhard (Faculty Sponsor)
Department of English Literature, Massachusetts College of Liberal Arts
George Meredith’s Early Work: From the “Marriage-Tomb” to the “Love of Earth”

The English writer George Meredith (1828-1909) demonstrates as much artistic development in his novels and, especially, his poetry as that of any other Victorian writer. Two of Meredith’s earlier works, the novel _The Ordeal of Richard Feveral_ (first published in 1859) and the narrative sonnet cycle _Modern Love_ (1862) can be read as at least partly autobiographical in that they reflect, characterize, and focus interest upon his tumultuous life and tragic first marriage. My research into Meredith’s early work, including _The Ordeal of Richard Feveral_ and _Modern Love_ and other poems of this early period is meant to bring attention to Meredith’s underrepresented presence in the currently-popular view of the Victorian literary canon. My research focuses upon primary source material such as Meredith’s letters, as well as critical work. My encounters in the research reveal connections with the lives and work of other writers from the period as well as a critical and biographical understanding of George Meredith and the idiosyncratic way in which he composed his literature and juxtaposed his life with his body of work.
Theodore Dreiser uses the theatre as a symbol in his novel Sister Carrie to show the image-obsession of upper middle class culture at the turn of the 20th century in America. In the world of Sister Carrie, appearances define people and their relationships. The protagonist Carrie is a theatrical actress, but the most of the other characters in the novel, and Carrie off the stage, live their daily lives theatrically, playing the roles that their society demands of them, and as a result are never able to find real meaning or happiness in their lives. Using critical sources, this paper examines Dreiser's use of the theatre in Sister Carrie and its connection to the city and late 19th and early 20th century upper middle class American society and how the act of going to the theatre is, in itself, a sort of spectacle designed to signify a class of affluence, wealth, and prosperity. Carrie is the most successful actress of her day — on and off the stage. Her mastery of this spectacle leads her to be the most successful character, by late 19th and early 20th century American society's standards, in the novel. However, Carrie's success is ultimately empty and meaningless and, in this way, serves as a reflection on the true value, or lack thereof, in society's obsession with image and role playing.

This paper explores the stylistic direction of Shakespeare's later works (from Macbeth onward), arguing that drastic changes in Shakespeare's life and culture act as catalysts to a significant shift in his style and to an increasing emphasis on change and/or duality in his plotting. Using an original theoretical lens that considers both the author's conscious and subconscious stylistic choices while simultaneously building upon existing literary criticism and drawing upon biographical and historicist sources, the paper argues for a major reconceptualization of the role of femininity in Shakespeare's style, spurred largely by the losses of important female figures, and concludes that the complex style of his romances emerges as the ultimate product of this overall shift in style.

During the Romantic period, several writers explored the emotional and spiritual aspects of marginalized members of society. This could be perceived as a reaction to the treatment of "undesirables" during the Age of Enlightenment; according to Foucault's Madness and Civilization, the mad, the vagrant, and the suffering were confined in institutions all over Europe. However, the representation of the "undesirables" varied based on the gender of the narrator; a study of the gender dynamics between the sane and the confined opens a discussion about female narrators. William Wordsworth uses a masculine narrator in the text, "The Ruined Cottage"; a peddler shares the story of Margaret, who deteriorates into a ghostly figure as her losses grow. In "Suffering and Sensation in The Ruined Cottage", Karen Swann argues that Margaret's deterioration is accounted systematically in order to dehumanize her into a "ghost" trapped by domesticity. Percy Shelley uses a masculine narrator in the text, "Julian and Maddalo", who dehumanizes the maniac. In Charlotte Smith's poem, "Beachy Head", a gender-anonymous narrator recognizes a connection between "inmates," the shepherd's animals, and the Omnipotent. Anne Radcliffe's poetry experiments with gender identity while focusing on suffering characters, like Emily in The Mysteries of Udolpho. Mary Robinson writes empathetic poetry about undesirables with narrators of various genders. My conclusion is that the feminine narrators do not openly recognize as female and have a sense of camaraderie with undesirables. These narrators attempt to "free" themselves and the unfortunate characters, disturbing binary gender codes and the entire patriarchal system.
105 Room 803 1:30-2:15 Panel 3
Kelsey Norwood
Scott Maisano (Faculty Sponsor)
Department of English, UMass Boston
“Leave Procreants Alone”: Lesbianism, Loss, and Shakespeare’s Othello

In Act 4 Scene 3 of Othello, the titular character forcefully orders his wife, Desdemona, to dismiss her attendant, Emilia, because he “will be returned forthwith” (4.3.6), presumably to consummate their marriage. Although both women are fully aware of Othello’s imminent return, neither makes an effort to expedite their conversation. Instead, they settle into a lengthy interlude during which they share their thoughts about deeply emotional topics: Desdemona muses on death through her recollection of a childhood memory, and Emilia explains why she would cheat on her husband. This puzzling departure from the tone and pace of the play has led to this scene’s frequent abridgement in—or even outright omission from—stage productions of Othello. In my paper, I ask what is lost (specifically, for Emilia and Desdemona) when this scene is removed. For years, this scene has been acknowledged as the moment in the play which best defines the women’s bond as a friendship, a motherly bond, or a platform for feminist views. Although I agree that their relationship falls under all of these categories, I argue that there is another layer which emerges in this scene through Emilia and Desdemona’s attempts to reconcile their experiences with pain and loss. I utilize the social affect politics of Heather Love’s “Feeling Backward” to look even further backward into the pre-queer history of the Renaissance. In doing this, I analyze how, in this scene, Emilia and Desdemona mutually use pain and loss to negotiate (or “unpin”) their identities.

106 Room 803 10:40-11:25 Panel 1
Catherine Obrzut
Rosanne Denhard (Faculty Sponsor)
Department of English Literature, Massachusetts College of Liberal Arts
To and From Temptation: An Essay on Comus, Paradise Lost and John Milton

Although John Milton composed _A Mask Presented at Ludlow Castle, 1634_ and _Paradise Lost_ decades apart, both works highlight an important discourse on temptation and sin that many others of that age, whether or not they were Puritans, found themselves contemplating their entire lives. Using resources such as biographies and scholarly articles in addition to close attention to the Milton focus texts, the paper frames and discusses the similarities and differences the two works share in the context of Milton’s personal history and the history of the world that surrounded him. _A Mask Presented at Ludlow Castle, 1634_ (otherwise known as _Comus_) comes from the masque tradition, a form of courtly entertainment similar in numerous aspects to a play, while _Paradise Lost_ follows the epic poetry genre which was born of the oral tradition. The most apparent similarities found within the texts are female protagonists and their male antagonists. Though the two works present themselves differently due to their genres, other notable variations arise from the personalities and past experiences of the characters. Considering his religious beliefs, the essential message Milton expressed through these two texts is the idea of temptation and the potential consequences of giving into it.

107 Room 176 10:40-11:25 Panel 1
Tyler Prendergast
Rosanne Denhard (Faculty Sponsor)
Department of English Literature, Massachusetts College of Liberal Arts
“O Brave New World”: Staging _The Tempest_ for a Modern Audience Using Elizabethan and 20th-Century Theatrical Techniques

This semester, I am directing a student production of William Shakespeare’s _The Tempest_ at MCLA. This project is the culmination of a year of research, which began while travelling to England last spring as part of Professor Denhard’s Arts of Medieval and Renaissance Britain course, during which I witnessed firsthand both the reconstructed Globe Theatre and the remains of the earlier Rose Theatre in London. This opportunity prompted me to delve into the history of Elizabethan stages, as they transitioned from the aforementioned open-air playhouses toward indoor theatres, and eventually evolved into the traditional proscenium arch we are familiar with today. _The Tempest_, which chronologically marks the end of the era of open-air London theatres, is a model upon which to conduct an experiment in modern staging: I suggest that this production will be able to engage a modern audience--who otherwise may not have been fully open to experiencing a “classic” text--by abandoning the proscenium arch and combining research on
the context wherein the play was originally produced with the innovations of twentieth-century experimental theatre. Following the production, I will interview audience members to gauge whether or not this experiment is successful: Do they feel that the play would have been more engaging in a traditional proscenium staging? How does this experience compare with their prior exposure to Shakespeare's works, both onstage and in the classroom? Based on the results of these findings, I will draw a conclusion regarding the strength of my hypothesis.

109 Room 176 10:40-11:25 Panel 1
Jessica Thelen
Marilyn Sandidge (Faculty Sponsor)
Department of English, Westfield State University
Cordelia and Desdemona: The Use of Speech, Song, and Silence as Weapons

King Lear's Cordelia and Othello's Desdemona are both strong-willed, noble female characters that stay true to themselves and the people they love while being victimized (Desdemona by Othello and Cordelia by Lear). Desdemona and Cordelia are warrior-like characters that fight this victimization by using the only things at their disposal, their voices, as weapons. Their voices act in three forms: silence, song, and speech. Desdemona uses her words to defend herself both against Othello and the slander of others. Whereas Desdemona is a marital warrior with martial qualities, offering to accompany Othello in battle, Cordelia is literally a martial warrior. She leads the French troops back into England in order to place her father back on the throne. These women not only fight with their words, but they try to save with them as well. Cordelia tries to save her father first through words, then through military action, and, finally, by silence, but she fails; her kingdom is still in turmoil, and her father dies in a mad swoon. Desdemona uses her voice to prove her innocence, but she ultimately fails as well: Othello kills her, maintaining his belief that she is a whore. These women use their voices to attempt to right what has been wronged, but, despite all their efforts, they fail to restore justice to their respective societies. Even though they fail in their quests to restore justice, they succeed in the way that they remain honest and pure despite the mistreatment that they suffer at the hands of those they love. They are warriors of voice up until and through their respective deaths.

110 Room 803 11:35-12:20 Panel 2
Johanna Young
Rosanne Denhard (Faculty Sponsor)
Department of English Literature, Massachusetts College of Liberal Arts
Milton and Education: Merging Old World Knowledge with New World Ideas

In his epic poem _Paradise Lost_, John Milton (1608-1674) gives life to the Biblical story of the Fall of Man. Spanning twelve books and over ten thousand lines, Milton describes the temptation and fall of Adam and Eve, their ejection from Eden, and the power play behind it all from Satan, God, and their Devils and Angels. By writing in traditions that were already familiar to the educated reader, John Milton was able to rewrite a story and incorporate modern ideas into the text. As a well-educated member of society and teacher himself, Milton’s grounding in both biblical and mythological traditions reflects the education of the time period, one whose curriculum traces back to the time of the Roman Empire with Christian additions. His extensive knowledge, and that of his peers and audience, allows Milton the chance to merge old world knowledge with new world ideas, like when he merges the new Christian idea of Heaven and Hell with the Old notion of the Realm of Chaos, throwing light onto the understanding of Heaven and Hell as actual feasible places that might exist. In looking at his education and the education of the time, we can understand better how Milton and his audience understood the epic, which ideas were new, which were old, and which were a combination of both fused together as one.

ENVIRONMENTAL STUDIES

111 Room 803 3:30-4:15 Panel 5
Rebecca Clemons
David Timmons (Faculty Sponsor)
Department of Economics, UMass Boston
Establishing Methods for Comparing Personal & Social Carbon Costs Incurred by Suburban Commuting to UMass Boston via Rail and Automobile
In light of growing concern over human-accelerated global climate change, increased attention has been focused on greenhouse gas (GHG) emissions, particularly carbon dioxide (CO2). According to the U.S. Department of Transportation, the transportation sector was the second-largest emitter of GHG’s in 2006 below only electricity generation, surpassing industrial and agricultural sectors among others. UMass Boston is a 100% commuter school with no on-site residences, and at a location convenient to both highway and Boston public transit access. Students from suburban locations are faced with a significant choice between driving or commuter rail service to travel to the university. Using cost data from the MBTA, UMass, and AAA, and working with emissions data from the EPA, USDOT, and New Jersey DOT, this project calculated and compared the major personal costs and social carbon emission costs for driving and commuter rail travel from suburban locations to Boston. The lowest-cost option varies depending on location and whether a student already owns a car, but carbon emissions for rail travel are consistently around a third that of driving. This project established Boston- and MBTA-customized methods that could now be useful in future development of an interactive cost/carbon calculator. With limited on-campus parking and a 100% commuting student body, highlighting the carbon and cost savings of switching to rail transit could help UMass Boston to greatly reduce its future carbon output and minimize land devoted to parking.

112 Room 811 10:40-11:25 Panel 1
Matthew Conlon
Ellen Douglas (Faculty Sponsor)
Department of Environmental Studies, UMass Boston
Sediment Characterization Behind Holmes Town Dam Brook, Plymouth Massachusetts

Holmes Pond is on Town Brook in Plymouth, Massachusetts. The approximately two mile long stream has hosted numerous dams over the years to provide power for factories that sprang up during the Industrial Revolution. The Town is currently removing these dams in order to restore a more natural aquatic environment in Town Brook. The Town has been investigating pollution left from the decades of factory production on the river, but the Holmes impoundment has yet to be characterized for contaminants. The goal of this research is to assess the prevalence of Chromium, Lead, and Arsenic within impoundment sediments. Chromium and Lead were used in industrial processes along the river and found in elevated levels in other locations, and Arsenic was used as an inorganic pesticide in the cranberry bogs upstream. During four trips to the site in October and November of 2012, the pond was surveyed with a depth rod on ten cross sections. Water depth, sediment depth, and GPS readings were taken at each point to create a three-dimensional model of the impoundment with ArcGIS. These measurements were used to approximate the volume of the water and sediment, and also used to map the current channel underneath the pond. Using this information, three sampling locations were chosen to take sediment cores for analysis. These sites were chosen based on location of the channel and the depth of the sediment. One site is located in the deepest sediment accumulation, and there are two other sites (one upstream and one below) that will produce cores of similar size. The cores will be used to approximate when contamination began and ended and then applied spatially to extrapolate the amount of polluted sediment within the impoundment. The results will be compared to the concentrations found in other impoundments along the river as a proxy for contamination transport. They will also be compared to the Massachusetts DEP limits for acceptable pollutants in order to determine if the concentration of contamination found warrants mitigation when the dam is removed.

113 Room 176 2:30-3:15 Panel 4
Caitlin Gardipee
James Boyce (Faculty Sponsor)
Department of Economics, UMass Amherst
Sea-level Rise: Planning for the Future of Cape Cod, Massachusetts

The acceleration of sea-level rise due to climate change threatens the shoreline of Cape Cod, Massachusetts with encroaching tides, storm surge, and saltwater intrusion. Land use planners from the Cape Cod Commission, national scientists, and regional policy-makers are working on adaptation and mitigation measures to protect the Cape’s groundwater, infrastructure, and residents. Through primary interviews with regional legislators and scientists, as well as a review of the relevant academic literature and news articles, this research examines the dangers that human-accelerated sea-level rise poses to Cape Cod, the solutions that have been proposed to curb its effects in the region, and potential solutions drawn from elsewhere. This account may be useful not only for Cape Cod policy-makers and land use planners, but also for those in other regions worldwide faced with similar climatic changes.
Marine Protected Areas: A Case Study of Effective Management Techniques for Continued Conservation

Patricia Hooper
Department of Economics, UMass Amherst

Marine Protected Areas: A Case Study of Effective Management Techniques for Continued Conservation by Patricia L. Hooper

The delicate and vitally biodiverse ecosystems of the world’s oceans rank high among precious natural resources that we must preserve for future generations. Marine Protected Areas (MPAs) are becoming increasingly important in the fight against environmental degradation. However, the creation of such areas of limited value if they are not managed effectively and if the legislation establishing them is not properly enforced. Based on a review of scholarly literature and personal interviews with professionals in the field, this paper presents case studies of three MPAs located in the United States, Australia, and Indonesia, to identify the differences in their policies, enforcement strategies, and efficacy. Successful policies not only advance marine conservation goals, but also address the social, economic, and political factors that affect policy outcomes.

Activation of Aryl Hydrocarbon (Dioxin) and Estrogen Receptor by Extracts of Common Household Plastics

Michelle Kossack
Michael Denison (Faculty Sponsor)
Department of Environmental Studies, UMass Amherst

Activation of Aryl Hydrocarbon (Dioxin) and Estrogen Receptor by Extracts of Common Household Plastics

Halogenated aromatic hydrocarbons are a group of widespread, highly toxic environmental contaminants that produce a diverse range of species- and tissue-specific toxic and biological effects by persistent activation of the aryl hydrocarbon (dioxin) receptor (AhR), a ligand-dependent transcription factor. While the most potent AhR activator is 2,3,7,8-tetrachlorodibenzo-p-dioxin, the AhR can be activated by a variety of structurally dissimilar chemicals. AhR active chemicals have been identified in extracts from a wide range of materials, including commercial and consumer products. The ability of AhR activators to produce adverse effects, including estrogenic endocrine disruption, raises concerns about the impact that inappropriate disposal of commercial products containing AhR activators may have on the environment. Accordingly, we examined the ability of solvent extracts (water, ethanol and DMSO) of a wide variety of frequently discarded consumer products to activate the AhR and estrogen receptor (ER) signalling pathways using the chemical-activated luciferase gene expression (CALUX) recombinant cell bioassays. The results of these studies revealed that DMSO extracts of most materials we examined contained AhR activators. Extracts of an automobile tire exhibited the greatest AhR induction response, followed by extracts of plastic bottles and recycled plastic materials; extracts of plastic grocery bags and bottles contained the significant ER agonist activity. Overall, while these studies demonstrate that a variety of commercial/consumer products contain AhR and ER activators that could be released into the environment, the impact and toxicological significance of these chemicals remains to be determined.

The Hunger Games: Factors Affecting Provisioning Rates of Common Murre Chicks

Emma Nelson
Curt Griffin (Faculty Sponsor)
The College of Natural Sciences, UMass Amherst

The Hunger Games: Factors Affecting Provisioning Rates of Common Murre Chicks

Variation in nestling provisioning rates for marine birds typically reflects differences in prey availability and foraging efficiency and can directly affect nestling survival. We hypothesized that provisioning rates for common murre chicks will vary with time of day, among locations within a colony, and among years. We collected provisioning rate data through direct observations and digital photographs taken during the daylight hours at a large murre colony at Yaquina Head, Oregon for three breeding seasons, 2010-2012. We used a multivariate linear analysis to identify factors affecting provisioning rates. We found that there was little variation in provisioning rates among individuals, ranging from 1-7 feeds per day. However, there was much variation in provisioning rates between years with the highest rate in 2012 and lowest in 2011. The variation in provisioning rates during time of day was considerable, with large number of feeds in the morning and the least number of feeds in the evening. Cloud cover, precipitation, temperature, wind direction and wind speed do not appear to affect provisioning rates, suggesting that prey availability and distribution are probably the primary factors influencing provisioning rates of common murres.
The future of the wild African elephant is no longer guaranteed. Despite an international ban on the trade in elephant parts dating back to 1989, poaching in recent years has reached historic levels and shows no signs of abating. Fueled by complex and diverse economic, political, and cultural drivers spanning Asia and Africa, a booming black market in illicit ivory is a bloody reality of the present day. As the carnage escalates it has become clear that the forces presently aligned against the illegal ivory trade are not up to the task, and maintenance of the status quo is no longer a viable option. This paper will argue for several decisive yet creative alternatives, such as lifting the international trade ban, which may be effective at curbing the violence. Without drastic, coordinated, and timely action this majestic species, a symbol of earth’s disappearing wildness, may itself vanish from Africa’s savannahs and forests in the coming years.

Many cities are in the early stages of climate change adaptation planning, but they often face a range of institutional barriers to coordination and leadership. To advance adaptation agendas, cities must work to overcome constraints that currently limit their progress. As a forward-thinking city, Boston, Massachusetts is an ideal location for this to take place. The city is actively developing its own climate action plans, and exchanging ideas and best-practice experiences with other cities across the U.S. and around the world. The increasingly widespread phenomenon of local climate action by an interconnected network of cities not only can improve their own resilience but also may influence national policies.

Over the past few decades Germany has made remarkable strides toward a greener future. The country has invested in renewable energy sources, especially solar and wind power, and has enacted policy changes that encourage public participation in energy production. Currently, renewables account for more than 25% of Germany’s electricity consumption, and Germans plan to reach 80% renewables by 2050. Furthermore, the country is becoming more energy independent, producing its own energy rather than relying on foreign sources. In the United States, renewable energy makes up only 8% of the nation’s energy supply, and reliance on foreign energy suppliers has caused political and economic problems. To increase the use and development of renewable energy, and allow for a more secure energy-independent future, Americans can learn much from Germany’s policies. But to increase public support and adoption of clean energy policies, we also must change how money and influence work in national politics.

Performance Attribution of Investment Portfolios: Active Asset Management vs. Passive Asset Management. Passively managed index funds with low expense ratios have seen an enormous inflow of capital over since the financial
meltdown in 2008-2009. This paper attempts to (1) evaluate benefits of active asset management and advisory expertise and (2) to examine factors that have been affecting the ability of investment portfolios to consistently outperform the S&P 500 index over the last 3 and 6 years. The methodology used in this paper includes a simple factor model as an attempt to identify performance attribution factors among top 40 actively and passively managed funds over two time periods: the last 3 years and the last 6 years, i.e. with and without the data from the period of the Great Recession. The benchmark used is the S&P 500 index. The research is currently in progress. Upon completion of data analysis, we expect to draw the following conclusions: both active and passive styles of asset management have their advantages. There are however funds that have consistently outperformed their benchmarks in the last 3-6 years. Upon completion of the data analysis we expect to identify common factors that affect a fund’s ability to “beat the market”. These factors are likely to include proper asset allocation, tax efficiency, appropriate fee structure, effective security selection, and reasonable market timing.

121 Room 808 11:35-12:20 Panel 2
Othmane Lahsinia
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
How Do Islamic Banks Really Differ From Traditional Banks?

There has been a lot of research that has investigated Islamic Banking. This study aims to identify important aspects of this alternative banking system and compare it to the more traditional banking systems. More specifically, this research examines the role and risk exposure of these two banking systems using analysis based on metrics such as financial ratios. Further, advantages and disadvantages of both systems are also identified and thoroughly studied. The needed data has been gathered from financial statements of three Islamic Banks and three conventional banks, all based in Dubai. Initial results show differences in the products offered by these kinds of banks. Preliminary results also show the Islamic banks to be a more risky banking system.

GEOGRAPHY

122 Room 809 1:30-2:15 Panel 3
Martha Pskowski
James Boyce (Faculty Sponsor)
Department of Economics, UMass Amherst
La madre tierra no se vende, se ama y se defiende: Forest Carbon in Chiapas, Mexico

Reducing Emissions from Deforestation and Forest Degradation (REDD+) is a international program to price the carbon stored in global forests in order to incentivize conservation. Efforts to introduce REDD+ in countries of the global South have encountered resistance, however, from communities worried that their livelihoods, rights and environmental values would be undermined by the introduction of international carbon markets. Based on fieldwork in Chiapas, Mexico, and informed by the tools of critical geography and political ecology, I analyze the critiques of REDD+ advanced by social movements and non-governmental organizations, document the strategies they have used to oppose REDD+, and assess future prospects for both the program and forest conservation in the region.

123 Room 809 1:30-2:15 Panel 3
Marielys Velez
Stan Stevens (Faculty Sponsor)
Department of Geography, UMass Amherst
Strengthening and Revitalizing Communities By Using Cultural Maps: Case Study based on the Sherpa People

Documenting Indigenous Peoples and Community Conserved Areas and Territories (ICCAs) has been acknowledged by the International Union for Conservation of Nature (IUCN) as vitally important not only for conservation but for human rights. Concern over the loss of place names in association with the loss of cultural and biological diversity has increased in many fields of academia as well. Using data layers that were provided by the International Centre for Integrated Mountain Development and the use of Geographic Information System make it possible to map Sherpa ICCAs, such as the Khumjung-Khunde Community Protected Forest located in Nepal, onto other maps of topography and landuse. Current maps of their territories not only misrepresent place names but also misrepresent boundaries.
of sacred areas, ecological habitats and exact locations of current villages and settlements. The benefits of having access to maps with correct place names and locations of areas could very well help empower and rejuvenate the Sherpa culture among the younger generation as well as provide maps to prove to authorities the success of Sherpa conservation techniques and strengthen their ICCAs. There may be devastating implications, in imposing western conceptions of space upon indigenous communities with GIS, yet if these communities are seeking particular means to strengthen their culture are they to be dissuaded?

HISTORY

124 Room 811 1:30-2:15 Panel 3
Laura Asson
Jon Huibregtse (Faculty Sponsor)
Department of History, Framingham State University
Civil War Nurses: Facing Gender, Class, and Religious Differences in the Workplace

While much has been written about the role that Civil War nurses played in tending to the wounded, little has been written about the complexities of the nurses’ working environment. Using primary and secondary sources, this paper analyzes nurses’ struggles with important issues of the day, such as gender roles, class conflict, and religious differences. This paper argues that although wartime circumstances required a strong nursing force, Civil War nurses struggled with prejudices, jealousy, and frustration resulting from societal expectations of the time. Their work environment was complicated not only by the challenging physical conditions in which they worked but also by the prevalent social norms in nineteenth century society. Until the challenges Civil War nurses faced are analyzed, studies of these women’s work are merely gilded interpretations of their actions.

125 Room 811 1:30-2:15 Panel 3
Gregory Denson
Jon Huibregtse (Faculty Sponsor)
Department of History, Framingham State University
The Historical Memory of Towns in the Battle of Lexington and Concord

The engagement of American colonists with British Regulars on April 19, 1775 was the first armed resistance of the American Revolution. Men from several neighboring Massachusetts towns fought and in some cases died that day. Though they fought in common cause, over time the towns would remember events of the day differently. As monuments rose and poems were written 60 years after the battle the last surviving participants were called upon to recount the battle. With the passage of time town rivalries distorted these accounts and so a second conflict arose over the roles volunteers from the different towns played. This study examines how those communities came to emphasize or deemphasize particular points in their historical memory of the events of the battle and their own residents’ roles. It uses primary source materials from the Revolutionary era from some of those communities whose militia fought on April 19, 1775 and then examines how those communities have remembered and commemorated that day and the men who participated in that first battle and the greater war. The divergent focuses of historical memory taken are examined and explained with the understanding that what actually happened may not always agree with how events are remembered.

126 Room 811 1:30-2:15 Panel 3
Laura Douillette
Gregory Halfond (Faculty Sponsor)
Department of History, Framingham State University
The Concept of Lordship during the Welsh-English Conflict of 1274-1295

In the second half of the thirteenth century, Llywelyn ap Gruffydd, prince of Wales, failed to pay homage to his new overlord, King Edward I of England. Seeing this as the mark of a traitor, Edward I swiftly went into action, mustered up an army, and demonstrated his power by marching into Wales. It would take years of Welsh revolt and two more demonstrations of English might in battle before Edward I was able to succeed in conquering the Welsh and asserting his dominance as their overlord. Using chronicles, petitions, poetry, legal records and church documents, this paper will examine how the concept of lordship characterized the interactions between the Welsh and the English from
1274 to 1295. After discussing the major debates among historians regarding this conflict, the paper will explore two major expectations of lordship: services vassals owed to their lords and services lords owed to their vassals. In the first section, homage and military services will be explored as significant factors in lordship. Key examples from the conflict will be analyzed to determine the impact that these expectations of the relationship had on the actions of Llywelyn ap Gruffydd and Edward I, as well as the king and his men. In the second section, examples of what lords owed to their vassals will be analyzed for their impact on the conflict, including payment for services from his vassals and Edward I’s outward assertion of lordship through castle building. Lastly, the overall significance of thirteenth-century lordship will be discussed.

127 Room 803 2:30-3:15 Panel 4
Cassandra Forsman
Vanessa Diana (Faculty Sponsor)
Department of English, Westfield State University
Black-Indian Relations throughout History

Stemming all the way back to the very first settlers to land in the New World, the complex, but often overlooked, relationship between African Americans and Native Americans has been one rooted in love and war, vacillating from allies to enemies. The consequences of this complex relationship have lasted generations and still exist today. Through examining the contemporary play, “Grandchildren of the Buffalo Soldiers” by Assiniboine playwright William Yellow Robe, one can see that the consequences of this relationship have caused deep-rooted tensions in those families born out of this conflicted history. In order to understand better the root of these tensions, this paper draws from sources that focus on Black Indian people, the Buffalo Soldiers, Native American history, the contemporary legal battle concerning Black Cherokees’ tribal membership, blood quantum, the one drop rule, slavery in the New World, representation in the census, and the effect of the General Allotment Act. These sources explore the possible causes of this complex relationship and how these causes have had lasting effects on their descendants. After thoroughly examining the play and other sources, this paper comes to the conclusion that Native Americans and African Americans have spent too much of their time dwelling on the past that tore them apart rather than the love and shared history that has brought them together against a common enemy. Even playwright Yellow Robe believes that the descendants of Native and African Americans should find strength in their multiracial identity rather than seeing it as a burden.

128 Room 808 3:30-4:15 Panel 5
Garrett Gowen
Barry Levy (Faculty Sponsor)
Department of History, UMass Amherst

The portrayal of the events of the American War for Independence in the contemporary English press has received extensive analysis and review from historians of the period. However, the fallout from the conflict and the resulting peace process in Paris as it played out in the news of the day has escaped close examination. Using chiefly Smith College databases to access electronic scans of English newspapers from the period, this paper examines how the English press and public viewed the 1782 – 1783 Paris peace as compared with events at the outbreak of the war, such as the 1775 Battle of Bunker Hill. An analysis of the content of newspaper articles surrounding the proceedings in Paris reveals a nation increasingly uninterested in the progress of negotiations with the newly independent United States while remaining decidedly concerned about simultaneous wars with France, Spain, and the United Provinces. This image is in stark contrast to the jingoistic vitriol and internal debate which characterized English responses to the colonial combatants at Bunker Hill as violent and dangerous fanatics or true British patriots. This study paints a picture of an informed English public which is aware of and invested in the broader affairs of the British Empire long before the ages of nationalism and imperialism dominated the popular imagination. Moreover, the diverse British press provided the public with a wider array of viewpoints and facts than the contemporary press dominated by professionals and funded by large corporations fails to do.

129 Room 808 3:30-4:15 Panel 5
Christina Juitt
Timothy Lang (Faculty Sponsor)
Department of History, UMass Amherst
Lessons for Our Time: A Study of Tony Judt, Postwar Europe and the Role of the Public Intellectual
Postwar Europe underwent many changes in the years following World War II that affected not only Europe but the entire world. This thesis seeks to explore some of these changes and understand their consequences by examining Tony Judt’s historical work. I will argue that Judt’s background, including his Marxist influences, Zionist experiences and French expertise prepared him to write Postwar, his most impressive publication. These various influences not only characterized Judt himself as an outsider to his personal surroundings, but also resulted in his affinity towards outsiders within the scope of his historical studies. Based on both his personal life and interests, Judt’s work can ultimately be seen to reflect his own role as an outsider. Furthermore, I will demonstrate that the writing of Postwar provided the platform on which Judt transformed himself from a historian into a public intellectual. In exploring this transformation, I will focus on the role of the historian as a public intellectual involved in present-day politics. Using many of Judt’s writings, as well as some criticisms of his work, I will show how Judt’s personal background inspired his interests as a historian and how these interests helped him shift from a historian to a public intellectual. This paper will make the case that the modern historian has a responsibility to inform the public based on lessons from the past. Overall, the study of Judt’s life and of his particular interests illuminates the climate of postwar Europe while providing an example of a publically engaged modern historian.

130 Room 803 2:30-3:15 Panel 4
Stephan Rochefort
Ely Janis (Faculty Sponsor)
Department of History, Massachusetts College of Liberal Arts
From Charlestown to Hyde Park and Brighton to Southie: Community Opposition to Busing in Boston

In the wake of the landmark Brown v. Board of Education Supreme Court ruling in 1954, several attempts were made to integrate public schools in the United States. In the northern part of the country, racial segregation often occurred on a de facto rather than on a de jure level, so it was difficult to integrate schools that were not segregated by law. As a result, in cities such as Boston where ethnic ties dominated the social organization of the city, the process of busing students from their home neighborhoods to other parts of the city to attend school was implemented by judicial decree to achieve racial balance. It is often assumed that in Boston, racism was the sole factor that influenced opposition to busing; this project sought to determine if there were other major factors that could have contributed to the opposition movement. The research undertaken to answer this question included a variety of newspaper articles, editorials, and items, a South Boston High School teacher’s journal, various sociological journals from the 1970s and 80s, books regarding Boston’s unique ethnic structure, and books concerning integration in the northern United States. Oftentimes local and national media skewed perception of the anti-busing movement to make it appear as primarily motivated by racism. My research, however, challenges this interpretation. Although racism was a key factor in anti-busing opposition, my research demonstrates that in Boston’s ethnocentric neighborhoods of South Boston and Charlestown especially, uneasiness regarding the effects of large-scale social engineering projects, and concerns about the inequality of education and housing distribution were equally important in causing Boston’s fierce opposition to busing.

131 Room 803 2:30-3:15 Panel 4
Brian Rucki
Larry Owens (Faculty Sponsor)
Department of History, UMass Amherst
Military Paternalism and the Development of the Personal Computer

The intent of this study was to determine what role, if any, the United States military played in the development of computers – with particular emphasis on the personal computer. Computers have become omnipresent for the average American, yet few fully understand their origins. Through the use of books, essays, and other documents written before, during and after the development of desk-sized computers, a wide range of viewpoints could be analyzed, and a cohesive narrative created. It was determined that the Department of Defense, particularly the Advanced Projects Research Agency, played a significant role in developing personal computer technologies, but in an indirect, paternal manner. Of equal – if not greater – importance was the role self-described ‘hackers’ and members of the counterculture played. They were the visionaries who took ARPA funding and produced machines that were nearly indistinguishable from magic.
The western world of the 19th and 20th centuries can broadly be defined as a time when Europe sought to both indirectly and directly control people whom they considered less advanced and under-developed. Europe set out to culturally convert places such as Africa, Asia, and India and forced them to give up their ways of life and cultural preferences. This was because the Europeans believed it was their duty to God to assimilating less superior people into European culture. It was believed by doing this, that the Europeans were fulfilling God’s will. This was the beginning of a new brand of imperialism, different than previous imperial conquests in the 15th and 16th centuries, producing an evolution of the idea that the white man was superior to all. This paper explores social aspects and literary works that emerged and influenced Imperialism such as “social Darwinism,” Rudyard Kipling’s work “White Man’s Burden,” and Europe’s overall desire for social dominance to produce a new age of white superiority. Using both primary and secondary sources I examined what caused and what influenced the new ideas of this time. Ultimately, I concluded that things such as propaganda and books influenced Europe as a whole.

The Israeli military, known as the Israeli Defense Forces (IDF) is one of the few military forces in the world that relies on a policy of universal conscription. The traditional view is that most Israelis support this policy and see military service as an essential duty to protect Israel from attack by its Arab neighbors. However, since the 1982 invasion of Lebanon and continuing through the First Intifada (1987-1993) and the Second Intifada (2000-2005) there has been a shift in Israeli opinion towards universal military conscription. This research project intends to determine the political, economic, and moral reasons for opposition to universal conscription and refusal to serve primarily through interviews with Israeli soldiers and representatives of refusal groups in Israel. Research focus areas include conscripts’ wages, different conscription policies for ultra orthodox Haredim, the morality of IDF treatment of Arabs, and the military occupation of the West Bank and Gaza. It also attempts to determine if the refusal movement has grown since 1982 and how this could affect the future of the Israeli/Palestinian conflict.

For more than two decades, the science of climate change has been disputed by a strong countermovement in the United States, supported primarily by right-leaning politicians, conservative think tanks, and large corporations. This presentation argues that the climate denial movement is primarily ideological rather than scientific. It examines the climate denial movement and argues that the movement’s primary motivation is fear of any threat to the dominant capitalist paradigm, particularly perceived socialism. The paper analyzes the scientific consensus on climate change, the countermovement’s narrative, the media’s role, and the role fear plays in exacerbating an “us-versus-them” dichotomy. This analysis ultimately determines that a particular cultural worldview is at the root of the climate denial movement, one that equates environmentalism with socialism, and construes this imagined foe as the gravest threat to its ideology. Looking to the future, the current political stalemate indicates that the United States is unlikely to deal with climate change, no matter what the scientific evidence, until the American people learn to fear its real, rather than its imaginary, consequences.
In 2011 political protest seemed to dominate the news and the streets across the world. Despite distance in geography, the Occupy Movement in the United States and the Chilean Student Movement both stood out due to their shared protest tactic of occupation. A comparison is also appropriate because the two movements shared other similarities, such as the challenge they posed to a capitalistic culture, their marginalization by news media, and the mass participation of students country-wide. The purpose of this study is to compare relevant aspects and relative successes of the Occupy Movement and the Chilean Student Movement. I hypothesize that although the two movements were similar in their dedication to the ideals of democratic participation and inclusion, the differences in leadership structure contributed to the greater institutional impact of the Chilean Student Movement. The centralized nature of student government in Chile translated into a leadership structure for the movement as well, which enabled the movement to articulate demands and negotiate with the government. Through research of scholarly articles as well as news articles and internet blogs, I ultimately conclude that though the Occupy Movement lacked the tangible accomplishments of the Chilean Student Movement, its commitment to decentralized leadership increased its longevity.

Massachusetts has long been on the forefront of disability law in the United States. In fact, Massachusetts’ most significant special education law set the standard for the current US policy on disability. My goal through this paper will be to explore and evaluate the policies in Massachusetts pertaining to the education and employment of individuals with developmental disabilities. I will investigate the great strides Massachusetts has made in protecting the rights of disabled persons over the last few decades. I will also explore the various agencies, both public and private, involved in education and employment of individuals with disabilities, as well as the relationship between public and private agencies. Finally, I will discuss the effects and implications of these policies and policy changes on social attitudes towards disability and assess the relationship between the two factors. Social attitude dictates our laws and policies, which then, in turn, have further effects on our social attitudes. The laws we agree upon as a society are a reflection of our values and attitudes. As attitudes change so do the laws. Once these laws change, further social attitude change occurs creating a cycle. I will use a number of psychological theories and experiments to explain the nature of the relationship between disability policy changes and social attitudes towards disability. This research will be argued through a number of methods including literature review, data analysis, and personal interviews.

Poor relations between the West and the Middle East and North Africa are characterized by a lack of cross-cultural understanding between the two regions. In his landmark Orientalism, Dr. Edward Said suggests that this is at least in part because the West has traditionally homogenized and romanticized Middle Eastern culture as a method of suppression. Consequently, the realities of life in the modern MENA defy Western understanding. For the West to improve relations with MENA, it is imperative to become better-acquainted with the dynamics and complexities of contemporary MENA culture and identity. The original and translated stories in Modern Arabic Short Stories: a Bilingual Reader—including works by notable contemporary MENA authors such as Nobel prize winner Naguib Mahfouz—serve as a lens to examine MENA culture in vogue. The stories’ literary elements are discussed in respect to social, economic,
political, historical, and religious contexts that have shaped the region’s cultural landscape, and are compared to conventions in Western literature. Finally, this research will culminate in an original short story written in Arabic, mirroring literary features and elements typical of today’s Arabic short stories.

138 Room 917 11:35-12:20 Panel 2
Wadad Chammas
John Ambacher (Faculty Sponsor)
Department of Political Science, Framingham State University
Foreign Policy in Perspective

The importance of the United States as a world actor is not something that is often debated, as it has held an increasingly major influence over international affairs since the end of World War II. Whether they agree with the actions the United States takes or does not take, other countries are forced to acknowledge the impact those actions have on the world stage. If one were to look at the Middle East it would serve as a microcosm for that influence. The power that the United States has within the region and the ways in which it has directly and indirectly influenced policy and relations within the region are indicative of how the United States acts on the larger scale as well. One country in particular that reflects this is Lebanon, a war torn region since the 1970s; the country nicknamed “the Switzerland of the East” has had numerous encounters with foreign players as it has been engulfed in its bloody civil war. The focus of this paper will be on the role the United States played within the country of Lebanon since 1970; the reasons and goals behind American interventions (direct and indirect) as well as the lessons learned and applied from these interventions. One of the more interesting aspects will be the ongoing methods which the United States has used to maintain its relationship with Lebanon as a country and the ways in which it has limited its reach within this small nation in the Middle East. The paper will take an observational approach to the ways in which American policy has influenced the interactions by reviewing legislation, journals and foreign papers from the time and will involve a qualitative analysis as opposed to a quantitative approach. The influence the United States has is undeniable as we look at the ways in which it portrays itself on the world stage.

JAPANESE

139 Room 808 1:30-2:15 Panel 3
Bethany Cooke
Doris G. Bargen (Faculty Sponsor)
Department of Japanese, UMass Amherst
The Persistence of Autonomy through Death in Loyalty Driven Japan

The Japanese warrior class epitomizes the loyalty that remains an essential part of the Japanese identity. From 1185 to 1868, the samurai were expected to sacrifice their own lives and identities to the greater purpose of the shoguns, daimyos, and their families. However, their ultimate sacrifice can also be interpreted as a preservation of the self that absolute loyalty would seemingly remove. Loyalty to the self was not an ideal supported by either society or the government, but often it could manifest itself in the choices the samurai made. Loyalty was a choice, first and foremost, not an ingrained aspect of the samurai ethos. Rather than sacrificing the self, then, loyalty could uphold the natural ideals of self-preservation. This can most clearly be seen in the control of their death that the samurai retained and in the continuation of this practice in the post-samurai era. I will show that what was true of samurai who used death to preserve their sense of self in the Tokugawa period extended into the Meiji period. Mori Ogai wrote about Tokugawa samurai and lived, like General Nogi, as a samurai through the dissolution of the class in the 1870s. Both still used their deaths to preserve their individuality and self-determination. While dying for loyalty, the samurai could create an identity out of the collective body by being perceived heroically. General Nogi and Mori Ogai both spent their lives dedicated to the state, while resisting the loss of autonomy. Their deaths served to show that even absolute loyalty to the state sometimes allowed autonomy to persist.

140 Room 808 1:30-2:15 Panel 3
Amanda Dickinson
Doris G. Bargen (Faculty Sponsor)
Department of Japanese, UMass Amherst
Tomoe: the Legendary Legacy of a Samurai Woman
The samurai class dominated Japan from the Heian period (794-1185) until the end of the Tokugawa period (1600-1868). At the heart of its rich culture was a dedication to honor and a unique tradition of ritual sacrifice. Stories of the samurai, transmitted through oral traditions and war epics such as the Heike Monogatari (The Tales of the Heike), have been performed in various forms of theater and read as illustrated texts through the centuries. The values of honor, loyalty, and sacrifice that the samurai embodied affect all segments of Japanese society to this day. Have the Japanese fallen for a myth? Many of the episodes presented as history did not actually happen or were retold inaccurately and can therefore only be regarded as legends. Is the historicity of a character or event essential to strengthening our image of old Japan? Tomoe Gozen, a twelfth-century female samurai from Heike Monogatari celebrated today for her loyalty, strength, and sacrifice, will serve as a test case for my inquiry. Do the doubts scholars have raised about her historic existence distract from her appeal as a woman warrior worth a thousand? Whether legend or history, what might Tomoe have meant to her contemporaries and how can a modern audience make sense of such an unbelievably heroic character?

141 Room 808 1:30-2:15 Panel 3
Patrick Mund
Doris G. Bargen (Faculty Sponsor)
Department of Japanese, UMass Amherst
The Divided Loyalties of the Samurai

The samurai have been one of the most heralded warriors in the history of any culture. Their honor, respect and loyalty is displayed in many fictional works about great warriors. In my research I use primary sources in English translation as well as secondary sources to explore the origins of honor and loyalty as ethic values that the samurai struggled to maintain throughout their history, especially regarding their lords and their families. I question the warriors’ conflict of loyalty between filial piety and duties to their lords in order to seek insight not only into the samurai culture from 1180 to 1868, but also into the ways Japanese culture today has been shaped by history. For this discussion I will use Kobayashi Masaki’s film Harakiri (1962) as my primary example of this struggle in the life of a samurai. My research proved that while the samurai believed strongly in their loyalty and honor as warriors, their belief in family loyalty often created a rift in their economic relationships with their lords.

KINESIOLOGY

142 Room 809 3:30-4:15 Panel 5
Michelle Bradley
Sarah Witkowski (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Potential Role of MCP-1 Following Skeletal Muscle Damage

The complicated process of muscle regeneration following injury requires the work of multiple cell types, including microvasculature pericytes, and signaling molecules including monocyte chemoattractant protein-1 (MCP-1). Recent pericyte work has credited them with a potential role in muscle response to injury through NF-kB signaling. MCP-1 is believed to contribute to the immune response following muscle injury. It is currently unknown if pericytes assist with muscle repair following damage through MCP-1 signaling. This study aimed to determine the effects of in vitro muscle damage on NF-kB activation and MCP-1 secretion in of pericytes. C2C12 muscle cells were co-cultured with human primary pericytes (HPPs) and manually scrape injured (INJ). Nuclear extracts and conditioned media from the co-cultures were collected at a baseline (BSLN), 3, 6, and 24-hours post-injury. NF-kB DNA binding activity and MCP-1 concentration were assessed using an ELISA. In HPPs, p65 DNA binding activity was increased relative to BSLN at 6h (2.0 fold, p=0.007), and 24h (2.33 fold, p=0.001). HPPs trended towards greater p65 DNA binding activity in INJ compared to CON (p=0.085) and in comparison to C2C12 cells (p=0.079). At 24h, HPP MCP-1 secretion was first detected and exceeded C2C12 MCP-1 secretion (2.1 fold, p<0.001). Potential evaluation of MCP-1 as a signaling molecule is crucial for the process of improving therapies and treatments to assist skeletal muscle wasting and atrophy patients.

143 Room 903 2:30-3:15 Panel 4
Rachel Burgess
Sarah Witkowski (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
The effect of hyperglycemia and acute exercise on circulating angiogenic cell cytokine release
Vascular dysfunction occurs in cardiovascular disease (CVD) and diabetes. Circulating angiogenic cells (CACs) influence vascular repair through the release of vaso-active factors including cytokines. However, the identification of cytokines and the effect of glucose on CAC cytokine release is unknown. Further, exercise may impact CAC cytokine release. The purpose of this study was to examine the effect of acute exercise on CAC inflammatory cytokine release in a normal and hyperglycemic environment. Healthy, active, non-smoking males (n=9, 24±6 years), with no history of CVD were recruited for the study. Blood was drawn before and after a 30 minute bout of exercise on a treadmill at 70% maxHR. CACs were harvested and cultured using a CFU-Hill protocol in normal glucose (5mmol) and high glucose (15mmol) media. Media was collected for each of the 4 conditions (normal/pre-exercise, normal/post-exercise, high/pre-exercise, high/post-exercise). A multi-analyte ELISArray was used to assess relative differences between the 4 conditions for 6 candidate cytokines (n=2). From these results, responses were found in 3 inflammatory cytokines: TGFα1, TNFα, and MCP-1. Levels of each cytokine were then measured in all samples with a cytokine-specific ELISA. It is hypothesized that a hyperglycemic environment will increase CAC inflammatory cytokine release and acute exercise will reduce the concentration of inflammatory cytokines in the media. The results of this study will help to better understand the relationship between exercise, glucose and CAC cytokine release.

144 Room 811 2:30-3:15 Panel 4
Megan Colwell
Edward Debold (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Alterations in Interleukin-8 and Extracellular Signal-Regulated Kinase in Cigarette Smokers Following Eccentric Exercise

PURPOSE: It is suggested that altered inflammatory responses in cigarette smokers may lead to an increased risk for physical disability following musculoskeletal injury. After a muscle-damaging exercise, neutrophils are drawn to the damaged site to remove debris, release cytokines, and promote further tissue damage, a process necessary for adequate repair. Two proteins essential in the inflammatory phase are Interleukin-8 (IL-8) and Extracellular Signal-Regulated Kinase (ERK), which may lie along the same pathway and act to enhance neutrophil chemotaxis. METHODS: Fasted blood was taken from non-smokers and smokers at baseline, 6 hours post-exercise, and every 24 hours for five days. Neutrophils were isolated via a density-centrifugation technique and mRNA was extracted. I will analyze IL-8 mRNA expression using a PCR Array and ERK phosphorylation will be analyzed via Western Blots. RESULTS: I expect that phosphorylation of ERK in smokers will be attenuated in comparison to nonsmokers, yet both groups should show an increase in ERK phosphorylation following exercise. I expect that both groups will have increased IL-8 expression 6 hours post exercise, yet this increase will be attenuated in smokers. While I expect IL-8 expression to return to baseline levels by 24-48 hours post-exercise in non-smokers, smokers will have a prolonged elevation of IL-8 mRNA expression. CONCLUSION: The finding that ERK phosphorylation and IL-8 expression is attenuated in smokers could explain, in part, an impaired inflammatory response and an increased risk for disability following musculoskeletal injury in cigarette smokers.

145 Room 903 2:30-3:15 Panel 4
Taylor Cronin
Barry Braun (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Effects of energy harvesting technology on exercise behavior

Energy harvesting technology allows energy created during human movement to be captured and used at a later time. Current energy harvesting technology includes backpacks, knee braces, and exercise equipment. This study uses a stationary bike outfitted with energy harvesting technology to capture and store the energy created during exercise. Since energy harvesting technology is related to attitudes about societal ideas, such as global warming and ecological sustainability, we wanted to evaluate the idea that energy harvesting exercise equipment would create positive changes in participants exercise behaviors based on the connections to other issues in society. Methods: A one month side-by-side comparison of standard and energy harvesting stationary bikes took place in the UMass Body Shop Fitness Center. The energy captured from the harvesting technology was stored in a battery and used by plant grow-lights in a small greenhouse placed near the bike set up. All members of the Body Shop Fitness Center were allowed to participate in the study. After exercising on either stationary bike, participants were asked open-ended questions about their opinions of energy harvesting equipment, exercise behaviors, and how their behavior might have changed due to the presence of this technology. These results were analyzed qualitatively to determine common patterns and themes in participant...
responses. Results: Data collection is ongoing and final results will be presented at the conference. Conclusion: We anticipate that the presence of energy harvesting technology will have an impact on participants’ exercise behaviors. Further investigation into widespread use of energy harvesting technology will lead to a better understanding of changes in exercise behavior and the energy generating capacities of such technology.

146 Room 809 3:30-4:15 Panel 5
Julianne Jablonski
Sarah Witkowski (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Effects of inactivity on intracellular nitric oxide in circulating angiogenic cells

Physical inactivity and vascular endothelial dysfunction are related to cardiovascular disease. Circulating angiogenic cells, CACs, have the capacity to replace and repair damaged vascular endothelium either directly or through release of vaso-supportive factors. Intracellular nitric oxide (NO) is important for mature endothelial and CAC migration, motility, and proliferation. NOi is therefore a key determinant of CAC function. The aim of this study was to determine whether CAC number and NOi changed in response to ten-days of reduced physical activity (rPA). rPA was defined as withdrawal of any activity over 3 METS. We hypothesized that rPA is related to decreased CAC number and NOi in CACs. We examined two types of CACs; CFU-Hill and CD34+ cells isolated from peripheral blood mononuclear cells of endurance-trained men (>30 min 3x/week) prior to and after rPA. NOi was determined via DAF-FM diacetate. Caloric intake was matched to reduced expenditure during the rPA period. Results indicated that CFU-Hill colonies decreased in number by 29.9 +/- 25.4%, whereas CD34+ increased by 39.8 +/- 40.1%. CFU-Hill NOi had decreased by 56.6 +/- 11.0% after reduced physical activity. While CD34+ cells had reduced NOi by 21.2 +/- 37.1%. In conclusion, rPA leads to lower colony number and NOi levels in CFU-HILL CAC but not in CD34+. These data reveal that rPA alters CFU-HiLL CACs however, CD34+ CACs may be more resistant to cellular changes associated with reduced physical activity.

147 Room 811 2:30-3:15 Panel 4
Lindsey Richard
Sarah Witkowski (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
VEGF-D levels in Cigarette Smokers after Eccentric Exercise

Cigarette smoking increases risk of muscle injury and leads to a longer muscle rehabilitation period after injury, but the mechanisms behind these risks have not been identified. During recovery from muscle damage, there are increases in gene expression related to angiogenesis as well as a defined inflammatory response that has been shown to be critical to muscle recovery. However, a prolonged inflammatory response can increase vascular permeability and neutrophil secretion into the muscle, increasing tissue destruction and prolonging muscle recovery. Vascular endothelial growth factor-D (VEGF-D) can augment angiogenic effects and vascular permeability of the blood vessels and thus is involved in the inflammatory response after muscle injury. The purpose of my research is to test whether alteration of VEGF-D expression is a mechanism through which smoking prolongs muscle recovery after injury. PCR array will be used to analyze the mRNA level of VEGF-D in neutrophils at baseline, six hours and once a day for five days post eccentric exercise. At rest, smokers will express a greater level of FIGF mRNA (VEGF-D) in peripheral neutrophils in comparison to non-smokers. In response to exercise, smokers and non-smokers will express a greater level of FIGF mRNA in peripheral neutrophils in comparison to levels at rest, but smokers will express a greater level than non-smokers. It appears smokers prolonged secretion of VEGF-D, which potentially leads to a protracted inflammation process and a delayed regeneration time.

148 Room 809 3:30-4:15 Panel 5
Kristen Richard
Edward Debold (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Alterations in Matrix Inflammatory Protein Markers Metallopeptidase 9 and Nuclear Factor Kappa-B in Cigarette Smokers Following Muscle Stress

Alterations in Matrix Inflammatory Protein Markers Metallopeptidase 9 and Nuclear Factor Kappa-B in Cigarette Smokers Following Muscle Stress PURPOSE: Recent novel work in our lab has found that smokers may have an altered
molecular response to a damaging eccentric exercise of the quadriceps. Given the crucial step the inflammation process performs in muscle regeneration, it is possible that altered inflammation in smokers, specifically in neutrophils, is responsible for impaired regeneration after muscle damage. Activation of the nuclear factor kappa-B (NFkB) pathway, a transcription factor responsible for initiating inflammatory events in neutrophils, may be attenuated, as well as its regulation of possible downstream proteins such as metalloproteinase 9 (MMP-9), a protease that breaks down damaged extra cellular matrix. This research is novel because it will also help determine if smokers have a blunted inflammatory repair process and if NFkB regulates MMP-9 protein as part of an inflammatory response in neutrophils.

METHODS: 10 smokers and 10 non-smokers completed a muscle-damaging knee extensor eccentric exercise. Neutrophils were isolated from blood drawn at baseline, 6 hrs post-exercise, and every 24 hrs for five days post exercise. Custom made polymerase chain reaction (PCR) arrays specific for NFkB and MMP-9 are used to analyze gene expression in the neutrophil samples. This data will be compared against a western blot analysis of MMP-9 to measure protein at all time points, and a DNA-binding enzyme-linked immunosorbent assay (ELISA) antibody specific for p50 to compare NFkB activity at all time points. RESULTS: I predict that after eccentric exercise, NFkB activity in neutrophils will be lower in chronic smokers in comparison to non-smokers. Alterations in NFkB activity will directly correlate with alterations in MMP-9 expression, such that immediately post exercise smokers will have elevated but decreased levels of activity and expression compared to non-smokers, and that it will take longer for this activity to return to baseline in smokers.

CONCLUSION: This experiment may help researchers gain a better understanding of inflammatory pathways, specifically if there is a correlation between NFkB expression and MMP-9 protein expression. If the hypotheses are validated, these findings would support that smokers have an attenuated inflammatory response following a muscle-damaging exercise, which may contribute to the prolonged injury recovery time and increased risk for injury observed in smokers.

149 Room 811 2:30-3:15 Panel 4
Samantha Santiago
Frank Rife (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Muscle Function and Delayed Onset Muscle Soreness in Smokers & Nonsmokers

PURPOSE: Chronic smokers are at a higher risk for musculoskeletal injury and physical disability, however the mechanisms of this are not yet fully understood. The aim of this study is to examine the relationship of peak torque, rate of force development and soreness after a muscle damaging exercise in smokers and nonsmokers. METHODS: Ten smokers and 10 non smokers were evaluated after a single bout of muscle damaging exercise consisting of 10 sets of 10 repetitions of eccentric exercise on their non-dominant leg using a Biodex dynamometer. Strength data, including peak torque, time to peak torque and rate of force development were collected, along with soreness values measured by a 100 mm visual analog scale. All data was collected pre- and post-exercise for a total of 7 visits. Normality was tested using the Shapiro-Wilk test. The Friedman test will be used to analyze within-group and between group differences over the 7 time points. The Wilcoxon signed-rank test will be used to compare differences at each time point. Correlation will be analyzed using a Spearman correlation test. Significance will be accepted at p<0.05. RESULTS: It is expected that smokers will have lower peak torque and rate of force development along with higher levels of soreness. Peak torque and rate of force development are associated in the initial phase of recovery sharing similar physiological mechanisms associated with the soreness time course. CONCLUSION: This study may provide evidence for the supposition that smokers have a slower reaction time causing a greater risk of injury and if injured, a prolonged recovery time. This may be an implication that smoking is a costly risk factor and burden to society due to decreased productivity, quality of life, and time away from work.

LANDSCAPE ARCHITECTURE

150 Room 909 3:30-4:15 Panel 5
Jennifer Verville
Annaliese Bischoff (Faculty Sponsor)
Department of Landscape Architecture, UMass Amherst
Gardens Can Grow In Any Heart, At Any Height

The United Kingdoms’ Urban Green Spaces Taskforce did a study in the early 2000’s proving the benefits humans receive through the providing of a green space on a roof. These benefits included improved physical and mental health,
as well as emotional stimulation. Many people, such as Landscape Architect Thomas Church, have written about the emotions conjured by a well designed garden. A study prepared by students of the Landscape Architecture department will be based on the theory that these roof-top gardens will attract all people seeking the benefits of a garden, unassuming of a person’s social class, gender, or background. On a participating building within the Pioneer Valley, with easy roof access for its tenants, a small garden space will be installed. The subjects in this study will be the tenants of the building. The subject tenants will be observed in the amount of time they frequent the garden space, as well as how the subjects interact with each other through use of the garden space during a period of weeks in spring. It is to be noted that there will also be a period of time in which we reorganize the garden and for another week we will observe the subjects subsequent reactions. There are no results yet, as the study is continuing to be organized. I expect results, however, to show a large increase of the participating buildings tenants using a shared garden space, and for the building roof to become a desired space itself. The implications for such findings could increase green roof garden spaces for private residential and work space enjoyment in cities where gardens may be few in number.

LINGUISTICS

151 Room 903 3:30-4:15 Panel 5
Jeremy Cahill
John Kingston (Faculty Sponsor)
Department of Linguistics, UMass Amherst
Spectral contrast effects when Ganong effects are delayed

Does a spectrally contrastive phonetic context affect phoneme monitoring independently from lexical biases (AKA Ganong effects)? Earlier experiments showed that such phonetic contexts shifted categorization of both vowels and consonants independently from lexical biases. However, since these contexts were also part of the string that created the lexical bias, we sought to postpone the application of lexical knowledge with stimuli in which the phonetic context and target phoneme preceded the word’s uniqueness point (Frauenfelder, et al. 1990). Listeners monitored for any of [p, b, f, v, t, d, s, z] or any American English stressed monophthong after both spectrally high and low contexts. Response times are predicted to be faster when the target contrasts spectrally with the preceding phonetic context (e.g. the spectrally low target [v] contrasts with spectrally high context [i] in “evil” but the spectrally high target [z] in “easel” does not). Two pilot experiments found no effect of spectral contrast, perhaps because the change of target from trial to trial made listeners very uncertain about what sound to listen for. The current experiment tries to reduce uncertainty by presenting each target prompt visually and by repeating it auditorily.

152 Room 903 3:30-4:15 Panel 5
Jesse Horne
John Kingston (Faculty Sponsor)
Department of Linguistics, UMass Amherst
Writing Pin or Safety Pin? An ERP and Behavioral Investigation into Perception of the Pin-Pen Merger

Do listeners quickly adapt to dialectal differences in the pronunciation of vowels in particular consonantal contexts? I investigate the perceptual and neural responses to the Southern merger of the vowels /i/ and /ɛ/ in such words as pin and pen, which are both pronounced pin. I predict that the brain of a non-merging speaker will merge /i/ and /ɛ/ perceptually when the listener hears them in a preceding merged context, because listeners rapidly adapt to new speakers. Event related potentials (ERPs) are combined with behavioral measures to uncover the covert mental processes that precede the listener’s decision. Non-merging participants hear a prime word followed by a target word and rate the second word as the same or different from the first word. In the isolation condition, both the ERP and behavioral response to a different pair, such as pin and pen, should show that the listener and his or her brain can tell them apart. In the context condition, the prime target pair is preceded by an informative sentence where the word then /ðɛn/ is pronounced with the merged vowel as [ðɛn]. This context encourages the brain to accept [pin] as an acceptable pronunciation of /pɛn/, which predicts a reduced ERP to different pairs. In this condition, the behavioral response could also mimic the brain’s response and speakers would rate pin and pen as the same more often.
MANAGEMENT

153 Room 809 11:35-12:20 Panel 2
Abigail Balme
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
Accessing India: A Case Study on Indo-American Joint Ventures

This research study strives to depict the environment and challenges for the establishment and operation of Indo-American joint ventures. As India emerges as an economic hub for industry, consumerism, and talent, it is imperative that American businesses learn how to engage with the Indian markets. Currently, the majority of Indo-American joint ventures fail due to disruptions in management, cultural differences, and misunderstandings about the markets. This study examines the perceptions, challenges, and operations of Indo-American joint venture partnerships using data obtained from a series of interviews with key managers of a manufacturing joint venture operating in Solan, India. It aims to provide professionals and academics with the understanding and insights they might need to succeed in India. This study expects to highlight several findings about the different norms for doing business with a manufacturing partner from India. Specifically the study is focused on management issues that are pertinent for stakeholders both inside and outside a plant. In particular this study examines issues that a joint partner might face such as dealing with haggling as a way to establish prices, traditional business courtesies as practiced in India, and complications due to transfer pricing.

154 Room 908 1:30-2:15 Panel 3
Dylan Brewer
Michael Schurter (Faculty Sponsor)
Department of Management, UMass Amherst
Paper Mirrors: Creating Inspiration Through Duality, An Audiovisual Experience and Documentary Premier

Paper Mirrors: Creating Inspiration Through Duality An Audiovisual Experience and Documentary Premier April 4th, 2013, Bowker Auditorium, 7 PM Hosted by WMUA 91.1, UMass Radio Filmed by Mariah Muscato Produced by The Brio Life Sponsored by TEDxUMassAmherst Partnered by Student Action Advised by Michael Schurter and Steven Floyd ABSTRACT Paper Mirrors. Music is inherently defined as the organization of sounds, and in an ever-changing culture of technology and acceleration, these sounds have been fleshed for dissection and experimentation. Genres have extended designations, and more realms are being explored than ever. There is a beauty to this voyage, and yet, this beauty can be lost when the mass of our generation has access to creating it. If sounds have defined music’s philosophy, then individual innovation is waning. Our generation has reached a creative peak in which it seems the notion of music must be stripped completely from the context of sounds, bending concepts and thriving in an atmosphere never before associated with how we perceive music. This documentary strives to take the essence of an artistic concept and duplicate it exactly into the form of another art. ONE artist. ONE musician. We will allow creative minds to experiment in an environment never ventured before, which hopefully will begin our hunt for the crux of newfound inspiration. And with the gathering of hundreds to witness the process, they are contributors in what is the apex of the captured film. They serve as the fruition of passion and appreciation for one single experience under one roof under one goal: mapping the path of inspiration for timeless existence.

155 Room 809 11:35-12:20 Panel 2
David Broomfield
Kwahng Kim (Faculty Sponsor)
Department of Management, Fitchburg State University
m-Rig: Videography Rig for the Film Equipment Industry

The idea of Four40 Designs was to produce a device that could implement external microphones, lighting equipment, tripod mounting, increased stability, and boom poles into a mobile phone. I call this product the m-Rig. The m-Rig is constructed using a billet aluminum design with phenolic plastic handles. It’s also anodized black to resist corrosion and to create an even surface finish. The m-Rig creates an affordable substitute for expensive film equipment for journalists and amateur videographers. The purpose of m-Rig is to enter the film equipment industry and contribute a guideline for new product development. This new product development project incorporates financial, structural, marketing,
and operational models. The project was significant due to the economic impact of small business entrepreneurs. It will provide a guideline to future entrepreneurs or new start up businesses that are interested in film equipment manufacturing. The project can also be used to implement new product lines or technologies into existing equipment manufacturers. This project will be expected to create skilled entrepreneurial jobs as well as create a low start up cost for filmmakers within the videography industry or journalists. This product is not perfect though; gaining customer interest is the most important part of this project. As I continue to perfect the m-Rig it will receive new features like a shutter button for camera control, lens adapters, and adjustable neck straps.

156 Room 809 11:35-12:20 Panel 2
Roszaini Sharraai
Guorong Zhu (Faculty Sponsor)
Department of Management, Salem State University
Bridging Cultures: A Case of Global Executive Coaching

Today's business world embraces globalization. Rapid expansion of cross-border business activities, however, comes with many challenges including those resulting from cultural differences. This coaching case study explores the challenges of cultural adjustment based on data gathered during an executive coaching program. An international company headquartered in France sent a high potential Chinese researcher, Ming Liu, to the United States, for his development towards a managerial career. To help him navigate the cultural differences as well as organizational dynamics, the company hired a management consultant, Gloria Chen, who was raised in China, but professionally trained and well experienced in the U.S., to conduct a six months executive coaching program for Ming. This case presents the specific challenges Ming encountered in his international exchange and how Gloria, the executive coach, could help him leverage the coaching arrangement to develop leadership skills at this career stage. This case is an Executive Coaching Case written for use by undergraduate students in Human Resources Management classes. It can be used more broadly in Organizational Behavior, Consulting Psychology, Leadership, or International Business where cultural differences might be a sizable component. The coaching case includes an instructor's manual for presenting and discussing this case study in order to encourage future business owners and Human Resources practitioners to try and understand the importance of intercultural sensitivity and its effects on business success.

157 Room 162 10:40-11:25 Panel 1
Benjamin Taylor
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Death from Within: An Examination of the American Food Industry

‘Death from Within: An Examination of the American Food Industry’ looks at whether there is evil intent in the high profits of the American food versus the low cost of food and the relationship of this dynamic with food-related disease, deaths, rising costs of healthcare, and the misuse of agricultural resources. Use of information published by the food industry, independent researchers, and government resources is presented. These findings show that driven by profits the food industry knowingly deceives the public and delivers products that are unhealthy to consumers resulting in disease and death of epic proportions. The low costs of these foods are simply externalized to higher costs in healthcare and in agricultural subsidies. While it is hard to accept that that an act of evil is committed by those who walk among us, no other conclusion is possible and the harsh reality of a tragedy that nearly all American consumers are a part of becomes clearly evident.

MARKETING

158 Room 808 11:35-12:20 Panel 2
Nicole Coccoluto
Michael Harrison (Faculty Sponsor)
Department of Marketing, Framingham State University
Effects of brand image on consumer behavior: A study of the Coca Cola company

In today's world consumers are constantly bombarded with promotions and advertisements for a wide range of products, everything from shoes and clothing to gasoline and food. With such an enormous pool of products it would
seem impossible for consumers to decide on one particular brand. This study focuses on the Coca-Cola Company and explores how the firm's brand image effects consumer’s decision to purchase its products. Using secondary and primary research this paper analyzes and determines how brand image impacts consumer behavior and more specifically consumer purchasing. This paper provides a summary of the components of both brand and consumer behavior and acts as a base for further research and analysis on these topics.

**MATHEMATICS & STATISTICS**

159 Room 911 10:40-11:25 Panel 1
Richard Hennigan
Joseph Fox (Faculty Sponsor)
Department of Mathematics & Statistics, Salem State University
A Method for Optimizing Manifold Reconstruction with Point Cloud Simplification

We present a method for simplifying a point cloud prior to manifold reconstruction. This has the advantage of avoiding much of the computation time that is associated with high complexity triangulation algorithms. Unlike other algorithms for simplifying such data, this method acts directly on the points themselves and requires no initial triangulation to describe surface characteristics. Some triangulation algorithms depend on assumptions (namely the consistent density of the point cloud) that will no longer be met if the points are simplified. We provide a summary of a reconstruction algorithm that can account for these problems.

160 Room 911 10:40-11:25 Panel 1
Adam Maidman
Michael Lavine (Faculty Sponsor)
Department of Mathematics & Statistics, UMass Amherst
Kernel Intensity Estimation of Nonhomogeneous Poisson Point Processes

Spatial populations such as location of plants or earthquakes are often sampled

**MECHANICAL ENGINEERING**

161 Room 909 2:30-3:15 Panel 4
Alexander Chan
Blair Perot (Faculty Sponsor)
Department of Mechanical Engineering, UMass Amherst
CFD Analysis and Optimization of a Microfluidic Mixer to observe Protein Folding

The structure and dynamics of protein folding is fundamental to understanding the biological characteristics of proteins. A continuous flow microfluidic mixer and Small-angle-X-ray scattering (SAXS) method are used to observe the folding protein in the microsecond timescale. In order to obtain data in the sub twenty microsecond timescale, the mixer design must be optimized so that mixing occurs as quickly as possible. A geometry currently used in research was simulated using both Fluent and OpenFOAM Computational Fluid Dynamics solvers (CFD). The simulation procedure and method is discussed. The results are compared to empirical data and presented. Other geometries are simulated and the most effective geometry recommended.

162 Room 909 2:30-3:15 Panel 4
Nicholas Jones
Vijaya Chalivendra (Faculty Sponsor)
Department of Mechanical Engineering, UMass Dartmouth
Mechanical Evaluation of Inertia Welded PM Iron

Abstract Spin welding porous iron and iron rods produces a variation of Young's Modulus along the axial direction at the weld. The Elastic Modulus is fundamentally related to atomic bonding, the effect of high temperature and pressure of friction welding on atomic bonding is studied by observing changes in Young's Modulus and grain structure. Based on load and depth relations obtained from equations in the literature Young's Modulus is determined with Micro-
Indentation. Sets of measurements are taken in 50µm intervals in a line along the axial direction crossing over the weld. The bonded region exhibited a Young's modulus larger relative to the two fused materials. Experimentally measured Young's Modulus divides the sample into 3 distinct regions; porous with a Young's Modulus of 140GPa, the welded region with 204GPa, and the solid iron with 196GPa. Photos of the grain structure depict the different grain sizes in each of the regions. The welded region is measured to be 130µm across and the variation in Young’s Modulus occurs across a 150µm distance. Variation may be due to non uniformity of the welded plane. The high temperatures and pressure of friction welding alter the atomic structure of the iron at the welded region which results in an increased Young's Modulus at the point of the weld. The decreased grain size in the welded region alludes to an increase in Elastic Modulus.

NURSING

163 Room 903 2:30-3:15 Panel 4
Stephanie Cabral
Kristen Sethares (Faculty Sponsor)
Department of Nursing, UMass Dartmouth
A Correlation of Health Literacy Levels in Cardiac Surgery Patients with Reading Levels of Discharge Instructions and Surgery Consent Forms

Background: The National Adult Literacy Survey (NALS) estimates that 40-44 million Americans are reading at the 5th grade level or below (Scudder, 2006). Low literacy level is especially a problem in the health care setting because there is a gap between the patients’ health literacy levels and the reading level of health information provided to patients. Low health literacy can lead to many negative health outcomes. Purpose: The purpose of this study is to evaluate cardiac surgery patients’ health literacy levels and correlate the reading level of the written discharge materials and consent forms for cardiac surgery to health literacy levels. Methods: The Rapid Estimate of Adult Literacy in Medicine (REALM) measured the health literacy level of 25 patients who underwent cardiac surgery. The Flesch-Kincaid readability test was used to determine the United States grade level for discharge materials and consent forms. Results: The mean health literacy level of the sample by REALM was 5.7, equivalent to seventh or eighth grade. The Flesh Kinkaid grade level of the written information provided to the sample ranged from 7.27 to 17.79 with a mean of 11.40. A large percentage of the sample is at a reading level below that of the written information being given. Conclusion: Further research is needed on the topic of health literacy to guide changes in the content and processes of providing patient education. Written materials need to be at a level the patient can read and comprehend to ensure the patients are receiving proper communication, medical care and to decrease negative health consequences.

NUTRITION & FOOD SCIENCE

164 Room 101 10:40-11:25 Panel 1
Sarah Coughlin
Susan Massad (Faculty Sponsor)
Department of Nutrition & Food Science, Framingham State University
Natural Solutions to Food Inequalities

While obesity is on the rise in the United States, the equal distribution of foods had essentially disappeared. Many people of low socioeconomic status are suffering from a lack of healthy foods in their diets. In many cases they simply cannot afford foods that are considered healthy and in many cases they simply do not have convenient access to healthy foods. Either way, solutions are needed to overcome this problem, so that everyone has an equal chance at living a healthy life. This study investigated ways to make sure that there are equal opportunities for people of every socioeconomic status to acquire the healthy foods that they need to survive. One plausible way to address these issues is to combat these inequalities with education.

165 Room 162 10:40-11:25 Panel 1
Alexandra Purdue-Smithe
Reed Mangels (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst
What is the Potential Correlation Between High Dietary Intake of Heterocyclic Amines from Red Meat and Cancer Incidence in the U.S?
Many studies in the past decade have analyzed the association of certain cancer types with heterocyclic amine (HCA) intake, specifically that of 2-amino-3,4,8-trimethylimidazo[4,5-f]quinoxaline (DiMeIQx), 2-amino-3,8-dimethylimidazo[4,5-f]quinoxaline (MeIQx) and 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) from diets high in red meat within specific cohorts in the U.S. The current research has not provided enough conclusive evidence of a positive correlation to warrant government guidelines and regulations. The goal of this review was to examine the potential correlation between high dietary intake of HCAs from red meat and cancer incidence in the U.S. The general approach of this research review was to compile and summarize recent epidemiological studies from the past decade regarding HCAs and cancer types most commonly hypothesized to be associated with them in the United States. According to recent findings, some types of cancer, including renal cell carcinoma and prostate cancer in African-American men may be associated with high intake of HCAs from red meat. Colorectal cancer has been shown in some studies to be directly associated with intake of HCAs and distal rectal adenoma, a precursor to colorectal cancer, has been positively correlated with HCA intake. Overall cancer mortality has also been shown to be associated with elevated HCA intake. Other cancer types, including breast and hepatocellular cancer and prostate cancer in non-African-American men have generally not been shown to be positively correlated with HCA intake. HCAs seem to play a role in the etiology and incidence of specific cancers, especially colorectal and renal cell carcinoma, and also in total cancer mortality in the United States.

166 Room 909 11:35-12:20 Panel 2
Lianna Tilton
Samuel Nugen (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst
Low-cost Rapid Acidity Test

Acidity is a vital part of apple juice and apple cider and it is very closely monitored during production. The titratable acidity (TA) plays a major role in the taste and perceived freshness of the product. This is measured by titration, but labs and lab equipment are not always readily available. I am developing a low-cost paper-based test using a multi-channel semi-quantitative dipstick, a very simple test for low resource settings. This presentation will describe the workings of and methods of producing this test.

PHILOSOPHY

167 Room 903 10:40-11:25 Panel 1
Jordan Ochs
Tim Nulty (Faculty Sponsor)
Department of Philosophy, UMass Dartmouth
The Phenomenology of Presence: Embodiment, Technology, and Contemporary Art

This study begins by tracing a history of the understanding of human being in the world, presence, and equipmentality in order to provide the reader with sufficient background and continues by offering a notion of presence as engageability or relevant solicitations. The idea of posthumanism is then addressed briefly and it is posited that particular technological devices are responsible for this theory due to their ability to alter the experience of presence. A phenomenological analysis of the way in which the computer, cell phone, and ipod alter the experience of presence follows and the section concludes with a discussion regarding what the preceding insights reveal about contemporary being in the world. The following section applies the previous philosophical conclusions in an art historical context. The discussion is rooted in art historical literature and the problem of addressing the pictorial turn. The importance of understanding visual culture in terms of embodied experience is made apparent. Analyses of several works of art throughout history via embodied experience are provided in order to show the effectiveness of this methodology. Then we turn back to the ideas from Part I explicitly in order to understand the present creative field open to artists as human beings in the world and the social network of meaning in which their works are interpreted. Finally, the examination of several contemporary works whose meaning is a direct function of the altered experience of presence due to electronic technological devices provides proof for the conclusions in Part I.
The purpose of this presentation is to investigate the relationship between music, language, and human emotional states. It is often suggested that music is a language of the emotions. I will offer various critiques of theories which see music as a communicative device for human emotions. I will apply linguistic and symbolic analysis to determine the potential meaning of music as an art form. The next step will be to detail how music has similar properties to spoken language, but ultimately is only effective as a symbolic system. I conclude that music is not a language, but a symbolic order that conveys aesthetic properties. I will claim that music, while possessing an emotional element, is not inherently emotional in content. Rather we must introduce the concept of beauty and how it provokes an emotional reaction within the listener, in order to explain how listeners of music come to experience an emotional reaction.

**PHYSICS**

169 Room 909 2:30-3:15 Panel 4
William Hanna
Jonathan Celli (Faculty Sponsor)
Department of Physics, UMass Boston
Probing Longitudinal Changes in Tumor Mechanical Microenvironments Using Particle-Tracking Micro-rheology

The processes by which cancer cells interact with and remodel their mechanical microenvironment play important roles in regulating tumor growth, invasion and metastasis, yet robust experimental systems to quantify local spatial and temporal changes in mechanical properties remain elusive. In this study we use particle-tracking microrheology (PTM) to observe changes in the local mechanical microenvironment of pancreatic cancer cells undergoing Epithelial to Mesenchymal Transition (EMT), a key process in invasion and metastasis. To accomplish this, we use an in vitro 3D tumor model in which we embed pancreatic cancer cells into a collagen gel (as a model extracellular matrix, ECM) containing small fluorescently labeled tracer beads. The thermal energy of these beads causes them to move randomly within the gel in a manner which is dictated by the microscopic structural and viscoelastic properties of the ECM. By analyzing these tracer bead trajectories, quantitative information about the mechanical properties of the gel is obtained at multiple time points. In this study, we use Transforming Growth Factor α1 (TGF-α1) as a biochemical stimulus known to induce EMT. By comparing longitudinal PTM measurements in samples with and without TGF-α1 stimulation we gain insights into temporal microstructural and mechanical changes in the tumor microenvironment concomitant with EMT over several days of tumor growth and development.

170 Room 909 1:30-2:15 Panel 3
Mark Lodato
Andrea Pocar (Faculty Sponsor)
Department of Physics, UMass Amherst
Measuring Reflectivity of Materials to Xenon Scintillation

To study the production, propagation, and detection of scintillation light in a liquid xenon (LXe) environment, construction of a xenon liquefaction and purification system was initiated. This experiment will set the stage for two tests designed to assist in the architecture of the next EXO (nEXO). EXO (Enriched Xenon Observatory) is a long term experimental program to search for neutrinoless double beta decay (0nbb) of Xe-136. Following on the path of the first generation experiment, EXO-200, nEXO plans to use five tons of LXe enriched to over 80% in the Xe-136 isotope. One test is a measurement of the relative reflectivity of several common materials to hard UV xenon scintillation (178nm light). Maximizing the reflectivity of the inner detector surfaces improves light collection efficiency and, in turn, energy resolution. Another test to be conducted is on the performance of silicon photomultiplier (SiPM) detectors in liquid xenon. Both these tests require purified liquid xenon, as similar tests have never been conducted under the proper LXe conditions. The design of the system and the planned measurements are discussed.
EXO (Enriched Xenon Observatory) is a long term experimental program to search for neutrino-less double beta decay of Xe-136. The second generation of this experiment, nEXO, plans to use 5 tons of xenon and hundreds of xenon scintillation light detectors. One option is to use avalanche photodiodes (APDs), which use electron “avalanches” in a semi-conductor to amplify signals. The size of the avalanche is strongly dependent on temperature and bias voltage. Over the past two years I have been part of fabrication, assembly, and data collection of a vacuum manifold to cryogenically test avalanche photodiodes. This system has a liquid nitrogen cooling apparatus, and PID controlled heaters to control the temperature of a copper APD support. The initial goal was to reduce external sources of noise so as to use the APD to detect photons from an iron-55 X-ray source. Sources of external noise consist of but are not limited to: ground loops, floor vibrations, induced electromagnetic interference, and voltage breakdowns. After overcoming the numerous sources of noise, I am collecting data to quantitatively understand the behavior of the APD under different bias voltages and temperatures. This information will aid nEXO in identifying any possible anomalies with this specific detector and assess its performance characteristics.

I will discuss the development of a slow control system for a radon filter to be used by the EXO-200 experiment. EXO (Enriched Xenon Observatory) seeks to discover neutrinoless double beta decay of xenon-136 and EXO-200 is the first experiment in the EXO program. One of the major problems the collaboration faces relates to air, which naturally includes a small amount of radon-222, present in a gap at the periphery of the apparatus between the cryostat and the outer lead shield. Radon’s progeny decay radiation can cause false positives in EXO-200’s data, so a radon filter is being installed for the air used to flush it. The radon is removed using vacuum-swing adsorption (VSA), in which two charcoal beds are in an alternating feed/purge cycle. The program which controls this opening and closing of valves during the cycle is referred to as the slow control system and uses National Instruments’ LabVIEW programming environment with NI cFP hardware. The system also includes controls for differential pressure, flow and temperature sensors, is fully compatible with the main EXO-200 control system and is capable of being expanded should the need arise in the future.

Fungal heterokaryosis, in which multiple genetically distinct nuclei coexist within a mycelial cell, contributes to genotypic and phenotypic plasticity in multinucleate fungi. Sclerotinia homoeocarpa, responsible for dollar spot disease of turfgrasses, is a sterile multinucleate fungus with a history of developing resistance to multiple fungicide classes. We demonstrate that two homokaryons, each bearing fungicide resistance to a different fungicide class, can form heterokaryons that exhibit dual-fungicide resistance and increased adaptability to changes in fungicide pressure. Homokaryons (HOMs) were co-cultured and heterokaryons (HETs) were isolated from the zone of interaction using hyphal tip isolation. HOMs and HETs were then assayed for fungicide sensitivity on single and dual-fungicide amended media. Heterokaryons displayed HOM SSR genotypes, but exhibited reduced fungicide sensitivity compared to HOMs. After swapping HET mycelia between single fungicide amended media, reduced fungicide sensitivity and shifts in
SSR genotype indicated that HETs could adapt to changes in fungicide selection pressure. Presence of both HOM nuclei in HETs was confirmed by detection of a SNP in the β-tubulin gene. In fungicide assays, survival of nuclei in heterokaryons depended on whether fungicide amendment concentrations were fungistatic or fungicidal. Results from this study suggest that S. homoeocarpa HETs can harbor distinct nuclei originating from HOMs with different fungicide resistance profiles. These data also suggest that HETs in the field have the potential to adapt to disparate fungicide pressures through nuclear disproportion and that selection imposed by fungicides is operating at the nuclear level in a heterokaryon.

**POLITICAL SCIENCE**

174 Room 811 3:30-4:15 Panel 5
Matti Koponen-Robotham
sheldon goldman (Faculty Sponsor)
Department of Political Science, UMass Amherst
**States and the Decisions of the United States Court of Appeals for the Second Circuit**

While much attention is paid to the Supreme Court of the United States, less attention is paid to the Courts of Appeals and how the panels of judges reach their decisions. While research has been done about particular judges, information on the how states and the courts interact at a judicial level needs to be expanded. By understanding the importance of states in the judiciary, it is possible to gain insight into both the Courts of Appeals and states themselves. This research relied primarily upon the detailed study of court cases for the Court of Appeals for the Second Circuit, covering Connecticut, New York, and Vermont, and how decisions relating to civil liberties emerged over the past two decades. Emphasis was placed on cases involving illegal narcotics, in order to highlight differences in opinions from the judges which were then examined to determine if state of origin had a significant impact. Attributes other than state of duty were taken into account, such as the political party of the appointing president, the composition of the panel, and the background of the judge, in order to provide a context and comparison for the examination of the role states play in judicial decision making. Overall, this study concludes that the state in which a judge is stationed is not a predictor of the decisions made by that judge, and does not stand out as having an extensive impact of judicial decisions. This research fits into one gap in the research about judicial politics and influences in judicial behavior, determining how and why judges reach the conclusions they do.

175 Room 903 11:35-12:20 Panel 2
Michael McNamara
Thomas Ferguson (Faculty Sponsor)
Department of Political Science, UMass Boston
**After Citizens United: Super Pac Spending in the GOP Primaries in 2012**

The U.S. Supreme Court’s Citizens United decision in 2010 annulled decades of campaign finance laws. The decision, which equated money with free speech, has altered, perhaps permanently, the existing political and social power structures in U.S. It is widely considered to have invested a few wealthy individuals who can bankroll candidates attempting to attain the highest offices with enormous political power. But since the decision is quite recent, analyses of its practical effects are just beginning. This study attempts to assess how all the new money in the system interacted with religious, economic, and ideological cleavages to affect the course of the Republican primaries. Drawing on a variety of sources, including census data for the income, ethnic, religious, and education of the electorate in each of the states in the GOP primaries, poll data before and after each primary, and spending by the campaigns and their affiliated Super PAC’s, the study attempts to shed light on the true impact of the Citizens United decision.

176 Room 811 3:30-4:15 Panel 5
Matthew Perry
Raymond La Raja (Faculty Sponsor)
Department of Political Science, UMass Amherst
**The Effects of Voter ID Laws in the United States**

In the United States, the right to vote has not always been inclusive to all citizens. Even after universal suffrage, barriers like poll taxes and literacy tests still worked to prevent different groups from voting. In the past decade, concerns about
voter fraud have spurred many states to enact laws that require citizens to present identification before casting their ballot. Currently, voter ID laws are in place in 30 states. My research situates these new laws in the legacy of voting practices in the U.S. My analytical goal is to determine whether voter ID laws disproportionally affect minority and low-income citizens, or if such laws have little or no effect on voting. To conduct my research, I compare two states: Indiana, which many consider to have the most stringent voter ID law, and Iowa, a similar state in many ways that has no voter ID law. By using census data, I select counties in both states that have the lowest and highest poverty levels, as well as the highest percentage of blacks or whites. Using voter data provided by state election agencies, I track voting trends in these counties over the past six general elections. I also examine strategic efforts by campaigns to counteract voter ID laws, such as early and absentee voting efforts by the Obama presidential campaign. My findings have important implications for political equality and the practice of democracy since Voter ID laws have the potential to change whether and how Americans vote.

177 Room 811 11:35-12:20 Panel 2
Laurie Roberts
Brian Schaffner (Faculty Sponsor)
Department of Political Science, UMass Amherst
Winning the War on Women: The Effects of Gender and Partisanship Cues on Candidates’ and Perceptions of Women’s Issues

Existing research dictates that Republican men have a mostly uphill battle when it comes to convincing voters they can effectively represent women better than a Democrat or a female candidate. Women’s issues are notable in this regard because gender and party affiliation heuristics become much stronger cues for voters, resulting in a “gender issue ownership” cue for Democrats and women. However, very little research exists examining whether Republican candidates can separate themselves from their party on these issues, especially when women’s representation is a salient issue during a campaign. I use the 2012 Massachusetts Senate campaign as a case study, analyzing exit poll data from 10 precincts across the state. The exit poll was designed and executed as part of a class project and includes a large representative sample of Massachusetts voters. On the survey, I asked respondents to rate the importance of abortion and equal pay, how well Scott Brown, Republicans, Elizabeth Warren, and Democrats represent women, and to what degree respondents were exposed to each side’s campaign ads. I find that attitudes on abortion and equal pay are a strong predictor of how well a candidate or party is perceived to represent women, which is strongly correlated to vote choice. Further, I show that while Brown was able to weaken the party identification heuristic and was seen as more moderate than the Republican Party on these issues, he was unable to overcome Warren’s natural advantages, and may have hurt his campaign with his own ads. These findings support and expand upon existing literature on male Republicans’ abilities to campaign on women’s issues, and more closely examine the relationship between party identification and gendered voter perceptions.

178 Room 903 11:35-12:20 Panel 2
Jacob Rosen
Brian Schaffner (Faculty Sponsor)
Department of Political Science, UMass Amherst
Public Attitudes of Iran’s Importance to Presidential Choice and Public Opinion on Policy Options Regarding Its Nuclear Program

Since the mid-1980s, Iran has engaged in the enriching of uranium and the development of a nuclear program. Claiming to be developing a nuclear program expressly for non-military purposes, Iran has recently aroused international suspicion over the aims of its nuclear program by ignoring U.N. deadlines to halt the program and by denying access of nuclear facilities to IAEA inspectors. Does the public care about current Iran/U.S. relations when it votes for president? The overwhelming consensus among most political scientists has been that foreign affairs are relatively insignificant to the public in comparison to domestic issues, and that they have little influence over a voter’s choice, especially in times of domestic hardships such as these (Saldin 2008). However, as this study shows, there is a clear relationship between voters’ perceptions of importance on the issue of Iran and who they vote for. More importantly, trends can be found in the distinctions between different demographic groups and the respective influence of Iranian/U.S. relations on their votes, especially when one examines the difference in perspectives among the ideological/partisan divisions. Furthermore, this study shows that while the public generally does favor options that avoid military action, a significant portion of people still support more direct military intervention in Iran, and
more noticeable divisions between demographics exist, especially between people of different ideologies. Perhaps most telling about public opinion of American Foreign Policy, this study has found that those for whom Iran was “very important” to their vote choice for president were significantly more likely to favor more direct military actions than those for whom Iran was not very important, even when ideology was accounted for.

179 Room 903 11:35-12:20 Panel 2
Angela Szymcik
Eric Budd (Faculty Sponsor)
Department of Political Science, Fitchburg State University
Life of the Party

Starting with President Reagan and ending with President Obama, this paper examines how the abortion position of a President alters the frequency of anti-abortion violence, and state enacted restrictions. It also compares judicial roadblocks to abortion related legislation and how it varies depending on when a judge or Justice was appointed.

180 Room 811 3:30-4:15 Panel 5
Ryan Webler
Sheldon Goldman (Faculty Sponsor)
Department of Political Science, UMass Amherst
The Conservatization of the Supreme Court: Why And How Far?

The Supreme Court has undergone a rightward jurisprudential shift in the last half century: from the Warren Court to the Roberts Court, the court’s decision-making has become increasingly conservative in several areas of the law. This paper analyzes this progression empirically and descriptively by drawing on relevant Political Science, Economics, and Psychology literature to develop a more complete account of judicial behavior in order to describe this shift and explain its bases. The impact of a Justice’s ideology, employment constraints, and personality define most generally the focus of the three fields mentioned above; this paper converges them into a more comprehensive description of judicial behavior that is put to the empirical test. After qualitatively defining judicial ideology and quantitatively describing the Supreme Court’s ideological shift across several case types (relying heavily on Professor Spaeth’s Supreme Court database and voting proxy measures such as Segal-Cover scores and Martin-Quinn scores) the paper explains, tests, then applies this comprehensive theory of judicial behavior to the court’s rightward shift. Factors such as membership change, reduced caseload, the decline of judicial restraint, and the rise of constitutional theories are posed as hypotheses that might explain this rightward shift. After testing them against a theory of judicial behavior that accounts for ideology, employment constraints, and personality, these factors are all confirmed to varying degrees as playing a part in the Supreme Court’s ideological transition.

PSYCHOLOGY

181 Room 162 11:35-12:20 Panel 2
Michael Alves
Diane Beers (Faculty Sponsor)
Department of History, Holyoke Community College
Fear in the Media and the Precipitants of Generalized Anxiety Disorder

This article examines the prevalence of fear present televised news media and the range of its effect in both short and long term exposure to individuals. The etiology and symptomatology of Generalized Anxiety Disorder (GAD) is presented and associations drawn between the observed effects of exposure to fearful content present in the media and the precipitants and etiology observed in studies of GAD. The data presented will define and identify the prevalence of fear as it appears in the media. The specific results of this exposure will be identified and then compared to the known precipitants and etiology of GAD. The implications of the parallels identified will serve as evidence suggesting the probability that the long term consumption of nonfiction media may have a significant effect in the development of pervasive anxiety that is characteristic of GAD. News media consumption and its significant negative impact on the development of negative mood traits or cognitions will then be evaluated, and methods of counteracting these effects of exposure by way of developing productive coping strategies and a sense of personal control will be outlined.
182 Room 101 10:40-11:25 Panel 1
Maurice Cyr
Mary Zahm (Faculty Sponsor)
Department of Psychology, Bristol Community College
What are the causes and consequences of food insecurity and hunger? How are these problems being addressed in our region?

In this presentation, information gleaned from the review of the scholarly psychological literature on the causes and consequences of food insecurity and hunger will be shared. The research questions addressed were: What is food insecurity? What are some of the reasons why a large number of women and children are experiencing food insecurity and hunger? What are some social and psychological consequences of food insecurity and hunger? What are some programs in the region of Massachusetts served by Bristol Community College that are designed to address those problems? A Community Service Leader project conducted to collect nonperishable items for area food pantries without enough supplies will be described. Information about a Mobile Food Market conducted at our college once a month during this past academic year will be discussed.

183 Room 168 3:30-4:15 Panel 5
Daniel D’Amelio
Eric Bressler (Faculty Sponsor)
Department of Psychology, Westfield State University
Examination of Possible Sex Differences in the Authorship of Films

Geoffrey Miller has argued that the human capacity to produce and appreciate humor evolved by natural selection because it functioned as a courtship device which increased the reproductive success of ancestral humorists. If this theory is true, it suggests that men should be more motivated to produce humor than women, particularly when that humor is intended for wide, public consumption. One avenue for testing this theory is to examine the authorship of films. If men are most motivated to make humor for a large audience, then they may more often be the writers of comedic films, compared to films from other genres, such as drama, romance, and action. We will test this prediction by using several online sources to select a random sample of U.S. films from the last three decades, and to gather information about the sex of the writer(s) of each film, as well as the sex of the director, producer, and stars to use as statistical controls. We will also examine whether the sex of the author of a comedic film is related to its success, as measured by domestic and international box office success, opening weekend gross, and Academy Awards nominations and wins. We will discuss our results in light of Miller’s application of sexual selection theory.

184 Room 903 1:30-2:15 Panel 3
Julian Gensler
Bernhard Leidner (Faculty Sponsor)
Department of Psychology, UMass Amherst
Self or No-Self? When, How, and for Whom Can a Buddhist-Constructivist-Scientific View of the Self Increase Human Ethics and Compassion?

Drawing on philosophical and social scientific literature on, and theories of, the self and mindfulness from different cultures, I propose an empirical, comparative investigation of the psychological consequences of exposing people to different views of the self: the independent-essentialized view of the self dominating among lay people in the West, the interdependent-essentialized view of the self dominating among lay people in the East, and the constructivist view of the self dominating among scientists, constructivists, and Buddhists. The study consists of two parts, an experimental component in the US and a correlational component internationally. Both components employ quantitative scientific methods to investigate: (a) the psychological reactions people have when confronted with these three different views of the self, (b) personality characteristics that allow to predict who will react defensively to and reject which view of self, and who will openly consider and endorse which view of self, and (c) the consequences of endorsing or rejecting the different views of the self for empathy, compassion, and ethical decision-making and behavior. Bridging Western and Eastern views of the self and conducting a cross-cultural investigation, this research adds to our knowledge and understanding of the self, as well as to the relationship between different views of the self and personality characteristics on the one hand, and empathy, compassion and ethics on the other hand.
**185 Room 903 1:30-2:15 Panel 3**

Thomas Hebert  
Brooke Orr (Faculty Sponsor)  
Department of History, Westfield State University  
2012-1692: A Modern View of the Salem Witch Trials  

Witchcraft...today, opinions regarding it range from pointless to a present-day danger. In colonial America, though, witchcraft was viewed as great and as real a threat as terrorism is today. And nowhere in America was this threat met with such violence as at Salem Village in the Massachusetts Bay Colony in the year 1692. All in all, twenty-three people died during the hysteria. Twenty were executed and three died sitting in jail while approximately one-hundred fifty people were imprisoned on charges of witchcraft. And who cast such dangerous accusations? A handful of pre-teen and adolescent girls. How did this happen? In a system where checks and balances existed and where most witchcraft trials ended in a not guilty verdict, how did the madness grow so great that it turned neighbor upon neighbor and ultimately shattered the Puritan lifestyle which up till that point had been the norm in Salem Village? Modern theories behind the causes lie in the disciplines of psychology, biology, and sociology or any combination thereof. More specifically, this paper reviews and discusses the impact on the witch trials through such aspects of life during that era as the Indian Wars, ergotism, the Porter versus Putnam conflict, and more. Utilizing numerous texts as well as a documentary, these topics are examined one by one in order to assess their merit individually as well as when combined with the others. Ultimately, the goal of this paper is to provide the reader with enough information to decide for him/herself which is the strongest theory regarding the causes behind the genesis, the barbarity, and the grandiose scale of the Salem Witch Trials.

**186 Room 911 3:30-4:15 Panel 5**

William Lary IV  
Daneen Deptula (Faculty Sponsor)  
Department of Psychology, Fitchburg State University  
Victimization: Predisposing Factors and Implications  

Victimization is the result of “physical, verbal, or psychological attacks or intimidation that is intended to cause fear, distress, or harm to the victim; an imbalance of power (psychological or physical); the absence of provocation by the victim; and repeated incidents between the same students over a prolonged period” (Farrington & Ttofi, 2009 as adapted from Owleus, 1991). Those who are victimized can be targeted for a number of reasons and experience a range of negative effects. Victimized youth are more likely to experience stress (Zhang & Lu, 2009), anxiety and depression (Holt & Espelage, 2007). Victimization is associated with the use of aggression (Terranova et al., 2011) as well as changes in brain development (Coates, 2010). The current paper will examine victimization with respect to the range of biological, psychological, and social aspects that contribute to dimensions of the victim and their environment. The aim of this review is to bridge the gap between these very different dimensions of victimization (biological factors: involving neurotransmitters, and brain structure; psychological factors: involving cognition, emotion, and symptoms; and lastly social factors: family, and peer influences), and indicate how these factors can influence the victim as a whole. Comments will be made on factors that predispose victims to being attacked or targeted. In addition, a number of outcomes which have been associated with victimization will be included within the review to address the question of, what makes a victim a victim? With a better understanding of the findings in the fields of victimization, more comprehensive and effective intervention/prevention programs may be formed. Those who are victimized could benefit from a multidimensional program centered at combating and preventing victimization (Coates, 2010).

**187 Room 908 3:30-4:15 Panel 5**

Elizabeth Mancevice  
Linda Isbell (Faculty Sponsor)  
Department of Psychology, UMass Amherst  
Defendant Diagnosis and Legal Priming Influence Insanity Verdicts  

Although the insanity defense is used in less than 1% of criminal cases, insanity cases are covered extensively in the media. Research demonstrates that this coverage results in misinformation and negative attitudes toward both the defense and those who use it. Yet to date there is no research on the factors that influence these attitudes. This study
examined the effects of a defendant’s mental health history (no history v. history of bi-polar disorder [no medication] v. history of bi-polar disorder [with medication]) on guilty verdicts after participants read a news article containing facts about either the insanity defense or a control topic (i.e., criminal justice). Participants were randomly assigned to read one of the two articles and then were randomly assigned to listen to one of three audio-recorded court cases in which the insanity defense was used; versions differed only by the defendant’s mental health history. Participants then reported their verdicts, attitudes about the insanity defense, and demographic information. Results revealed that relative to the control article, the insanity article decreased perceptions of guilt by reason of insanity, and this was true regardless of mental health history. In the control condition however, participants were more likely to perceive the defendant to be guilty by reason of insanity when he had a history of bipolar disorder and was not medicated than in the other two conditions. These findings have important implications for evaluating culpability and for assessing the impact of psychotropic medication on public perceptions of mental illness.

188 Room 168 3:30-4:15 Panel 5
Tessa Nalven
Michael Constantino (Faculty Sponsor)
Department of Psychology, UMass Amherst
The Influence of Expectancy Persuasion Techniques on Socially Anxious Analogue Participants’ Treatment Beliefs

Although patients’ prognostic psychotherapy outcome expectations have been shown to correlate with their actual posttreatment outcome, there has been limited research explicating treatment elements that causally influence these expectations. Of the studies that have tested such elements, most have focused on varied deliveries of a treatment rationale. Although treatment rationale delivery appears important for altering patients’ expectations, many studies have been marked by methodological shortcomings, such as lack of a control group. In the current pilot scale, clinical analogue experiment, I will examine the influence of specific expectancy influence methods, delivered in the context of a video-based presentation of a cognitive-behavioral treatment rationale for social anxiety, on post-rationale treatment beliefs and social anxiety symptoms. Forty undergraduates, screened for clinically elevated social anxiety and matched for sex and prior treatment history, will be randomized to the experimental (treatment rationale plus expectancy persuasion video) or control (treatment rationale only video) group. I hypothesize that individuals in the expectancy persuasion group, relative to controls, will evidence greater pre- to post-rationale increases in general psychotherapy outcome expectations, specific expectations for being able to change one’s anxiety, perceived clinician credibility, and perceived helpfulness of exposure techniques to address social anxiety. I also expect that expectancy group participants will report a greater decrease in pre-post social anxiety than control participants. Data will be analyzed primarily with mixed analyses of covariance. The findings will contribute to the currently limited research on explicit methods for influencing people’s treatment beliefs.

189 Room 168 3:30-4:15 Panel 5
Jane Studeny
Eric Bittman (Faculty Sponsor)
Department of Biology, UMass Amherst
Characterization of haPer1 expression in the suprachiasmatic nucleus of the novel “duper” mutant

Circadian rhythms insure proper timing of physiological functions and behavior. These endogenously generated daily oscillations entrain to the environment via direct retinal projections to a neural clock housed in the suprachiasmatic nucleus of the hypothalamus (SCN, Morin et al. 2005). The SCN was identified as a master pacemaker by transplant experiments in which the period of the circadian clock is that of the donor (Ralph et al. 1990). On the cellular level, transcriptional-translational feedback loops drive circadian oscillations. Expression of specific essential clock genes oscillates in constant conditions and is inducible by entraining light pulses. Our research examines the expression of one of these clock genes, Period 1 (haPer1) in the novel hamster mutant “duper”. Although the mutated gene is not yet identified, duper hamsters have a fast clock and are extremely responsive to light pulses. Using isotopic hybridization histochemistry, we aim to quantify haPer1 mRNA expression in the SCN in order to determine whether duper hamsters differ in free running rhythms or light induction. These experiments will provide information to improve health and public safety by reducing the deficits in performance due to jet lag or sleep deficiency while also improving treatments for cancer and metabolic disorders. In order to develop therapeutic tools to combat internal desynchronization that can lead to sleep deficiency, cognitive deficiency, and disease, we first need to identify and understand the pathways responsible for circadian coordination.
PUBLIC HEALTH

190 Room 908 11:35-12:20 Panel 2
Sarah Baker
Tara Mariolis (Faculty Sponsor)
Department of Public Health, Fitchburg State University
Campaign for a Smoke-Free Campus

Exposure to second hand smoke has been determined by the surgeon general to cause immediate cardiovascular changes in the nonsmoker (The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General –Executive Summary, 2006). Smoking has been banned from hospital campuses, public grade schools, inside public buildings, but there continues to be a lag on college campuses. Many universities in Massachusetts are included on the growing list of approximately 1,129 college campuses in the United States which have adopted the smoke free environment; these include UMASS Amherst, Bridgewater State University, Framingham State University, Salem State University, and Westfield State University (American Nonsmokers’ Rights Foundation, 2013). The goal here is for Fitchburg State University to be a part of this movement. To initiate the process, discussions with representatives from some of the Massachusetts campuses listed above were held to determine a plan of action for Fitchburg. It was determined that a 12 item questionnaire assessing interest in a smoke-free campus would be the next step. This survey will be distributed throughout the college community including students, faculty, and staff, and the results will be shared with the campus community.

191 Room 911 2:30-3:15 Panel 4
Amanda DiPietro
Clevanne Julce
Sattia Bangurah
Emily Engel
Tameka Gillum (Faculty Sponsor)
Department of Public Health, UMass Amherst
Sexual Assault in the United States among College Students

ABSTRACT Sexual assault is much more prevalent on college campuses than the many people may assume. Sexual assault is defined by the CDC as any sexual act that is perpetrated against someone’s will. One in four college women and one in thirty-three men will be a victim of sexual assault during his or her academic career. About ninety percent of sexual assaults are unreported, meaning that the actual statistic is realistically much higher. The purpose of our research is to highlight the Public Health impact of sexual assault and to obtain information about why these crimes are so underreported. We will do this through research using the UMass library database as well as other college databases that we are able to access, to establish a well-rounded examination of the issues and ways to address them. The lack of knowledge regarding reporting is a huge Public Health issue because it doesn’t provide optimal data to inform sexual assault prevention programs. Social marketing is the application of commercial marketing strategies to promote behavior that supports the common good of society. Through social marketing, individuals can be persuaded to change unhealthy behavior and therefore contribute to the general health of everyone in the community. We will create our own social marketing campaign for outreach across campus towards raising awareness and decreasing the prevalence of sexual assaults on college campuses, specifically our own UMass Amherst campus. Our campaign will do this by providing students with the signs of sexual assault, prevention methods, and resources for both victims and perpetrators.

192 Room 908 3:30-4:15 Panel 5
Marcella Felde
Lisa Wexler (Faculty Sponsor)
Department of Public Health, UMass Amherst
Building for the Future: How Tasks and Responsibilities Guide Inupiat Youth to Adulthood

Alaska Native youth face tremendous challenges while trying to adapt and transition into adulthood. Rapid social change manifests in both subtle and apparent ways, affecting the challenges young people face and the resources they access to overcome them. We aim to better understand how young people are spending their time and, more specifically, what daily tasks and responsibilities are preparing them for adulthood. The research examines how daily
responsibilities build, or limit, young people’s sense of capacity for their future. The data set being analyzed consists of detailed interviews conducted with 20 Alaska Native youth from a rural region in Alaska. Tasks and responsibilities that the participants referenced or described were identified throughout the interviews, using ATLAS.ti. In addition to the use of the existing data set, extensive literature reviews were also conducted on past and current related research. The results of this research show how responsibilities in home, community and academic settings give young people a sense of capacity that motivates them towards what they determine as a successful future. We aim to improve the health of Native American/Alaska Native youth by generating insights into how their daily responsibilities influence their aspirations. By studying young people that exhibit resilience in the face of adversity, it may be possible to diminish the overwhelming health disparities found within Native American communities.

193 Room 908 11:35-12:20 Panel 2
Shadia Lahlou
Elizabeth Gordon (Faculty Sponsor)
Department of Geological Science, Fitchburg State University
Palestinian Women and Determinants of Public Health: Social Mobility and Economic Empowerment in the Occupied Palestinian Territories

The occupied Palestinian territories (oPt) have been plagued by a history of war and occupation by Israeli military forces that has resulted in a continual loss of land and people. The effects of decades long conflict has fragmented the Palestinian people as they fight daily for their survival, while also working for an independent Palestinian state in the wake of mounting challenges. Women have been affected due to complex, multifaceted challenges both within their own culture and externally due to war and occupation. Palestinian women have played key roles in the resistance against occupation and struggle for independence as demonstrated during the First Intifada (1987-1993) and the Al-Aqsa Intifada (2000-2005); however, their individual needs and desires for their future status have become secondary to the greater national movement. The particular challenges and disadvantageous implications that Palestinian women face are therefore a social public health concern in protecting and promoting the public health of Palestinian women. While there are numerous important public health concerns and factors that compromise health outcomes in the oPt, this paper will focus on public health from a social perspective. Understanding social determinants of health for Palestinian women, through prioritizing their social and economic rights, will be assessed through social mobility and economic development. Important trends from the two Intifadas, during which women’s issues and desires were particularly highlighted, will provide a context for analyzing current challenges and opportunities in the ongoing development of the social public health of Palestinian women.

194 Room 911 2:30-3:15 Panel 4
Madeline L Niziak
Meghan M Chatellier
Silvana Malvezzi
Tanya Jules
Nicole Magier
Tameka Gillum (Faculty Sponsor)
Department of Public Health, UMass Amherst
Efforts to end school shootings through the public health approach

The United States has seen an alarming number of school shootings with some of the most horrific having occurred in the past fifteen years including Thurston High, Virginia Tech, and most recently an Elementary school in Newtown Connecticut. According to a report from the National Center for Education Statistics (NCES) and Bureau of Justice Statistics, school shootings have increased every decade since the 1960s. A joint report from the U.S. Secret Service and the Department of Education, identified four incidents of school shootings in the 1970s, five in the 1980s, twenty-eight in the 1990s, and twenty-five so far in the 2000s (Warnick, Johnson & Rocha, 2010). As government officials look to dive deeper into our Nation’s gun control laws, public health officials are providing their own solutions as to how we can put an end to these devastating tragedies. In this presentation we will examine how school violence has become a serious public health issue and how addressing gun control can be one approach to curbing the problem. We will both discuss our literature review highlighting this important issue and showcase our social marketing campaign against school violence. Social marketing campaigns are a way for a group or organization to educate a target population and encourage them to adopt a healthier lifestyle through the use of commercial marketing techniques. The research to
date has shown that preventative measures are necessary in order to decrease the number of school shootings across the country.

**195 Room 908 11:35-12:20 Panel 2**  
Stephanie Mullane  
Christine Crago (Faculty Sponsor)  
Department of Stockbridge School of Agriculture, UMass Amherst  
*Changing the Cost Benefit Analysis of EPA Policies Using A Hormetic Dose Response Model*

Currently, the linear dose response model is used to determine many policies involving carcinogens put into place by the Environmental Protection Agency (EPA) although there is scientific evidence to show that the hormetric dose response model is more scientifically accurate. The hormetric dose response model is a biphasic dose response model where low doses have a different response to high dose levels. Using a hormetric dose response model instead of a linear model could drastically change the cost benefit analysis of many of EPA's policies. I examine the validity of the hormetric dose response models with carcinogenic compounds through molecular mechanisms and past research data. I use the Stage Two Disinfectant/Disinfection By-Product Rule as an example of how changing from the linear dose response model to the hormetric dose response model changes the cost benefit analysis of EPA policies. Disinfectant By-Products form when organic compounds naturally found in water combine with chlorinated products that are used to disinfect the water. These By-Products are considered carcinogenic. Currently, these By-Products are highly regulated by the EPA and the EPA has set the allowed amount of Disinfectant By-Products as close to zero as possible. The stringency of the EPA's standard increases the cost of this policy and could also decrease the benefits. The Cost Benefit Analysis of the Stage Two Disinfectant/Disinfection By-Product Rule presented in this research can be used as a model to look at other EPA policies involving carcinogens.

**196 Room 162 11:35-12:20 Panel 2**  
Emily Rivard  
Timothy Lang (Faculty Sponsor)  
Department of History, UMass Amherst  
*HIV/AIDS in India: Fighting Social Stigma with Community Education*

India is home to the third largest HIV-positive population in the world, with over 2.5 million confirmed cases and no consistent strategy to control the disease. HIV/AIDS-related stigma, building on social inequalities, fear, misinformation, and strict moral codes, is a major barrier to HIV prevention and control. This stigma has spread into all sectors of Indian society, including medical and educational institutions, businesses, humanitarian organizations, and social communities, and thus HIV cases have gone undetected, undisclosed, and untreated. Other developing nations have faced similar challenges, however, and have made notable success in HIV prevention and stigma reduction through innovative education efforts. This thesis presents a literature review regarding HIV/AIDS stigma and discrimination in the Indian context, highlighting the manifestations and consequences of stigma. It then identifies successful HIV/AIDS prevention and education programs in the developing world that range from broad, policy-based campaigns to small-scale, community outreach programs. It analyzes the strategies used by these programs, taking into account the unique cultural and social contexts in which they were implemented. This prompts a discussion of the adaptability of these methods to the Indian context, and the challenges that Indian HIV education efforts must address. The research culminates in a detailed set of guidelines for a youth HIV education program proposed for Deep Griha Society, a non-governmental family welfare center working in the slums of Pune, India. This program would make important HIV/AIDS-related information available to young people in these underserved communities and empower them to protect their own health.

**197 Room 911 2:30-3:15 Panel 4**  
Amanda Rose  
Tameka Gillum (Faculty Sponsor)  
Department of Public Health, UMass Amherst  
*Child Abuse and Violence: A Public Health Issue*

Child abuse is a global issue that has affected societies worldwide throughout history. Fortunately, there has been an influx of awareness in recent decades. It has become a regular occurrence to see a report of child abuse in the
newspaper. The World Health Organization defines child abuse as “all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that results in actual or potential harm to the child's health, development or dignity”. The spectrum of child abuse varies and 20-50% of all children reporting being physically abused (WHO, 2013). This broad statistic is indicative of the varying levels of reports of this issue. While identifying the cause of child abuse is crucial to promoting preventative measures, we believe understanding how the effects of child abuse manifests itself in later life is intertwined in the issue. Guided by a review of the literature on child abuse, we will create an effective media campaign in order to stop child abuse before it starts, as well as better aid adult victims of child abuse to help end the cycle for good. Social marketing media campaigns draw from the commercial aspect to promote changes in behavior. We hope to utilize the concept of social marketing to reach the public and make changes in this public health issue. Through a media campaign we hope to educate, inform and empower the public to end the cycle of child abuse for good. Child abuse is an important public health issue with lifelong consequences, and must be approached as such.

198 Room 163 11:35-12:20 Panel 2
Benjamin G Chase
Patricia Baffoe
Yim M Lin
Sarra Sabouri
Tameka Gillum (Faculty Sponsor)
Department of Public Health, UMass Amherst
The Effect of Bullying Among LGBT Youth in Schools

Violence in schools is a serious public health concern which affects millions of students across the nation. Youth violence can have lasting negative impacts on the victim. Bullying, a subgroup of youth violence, is a pattern of repeated aggressive behaviors directed from one person or child to another, usually where there is a power difference. This aggression can be physical, verbal, emotional, or psychological in nature and can lead to severe health issues later in life. Those who identify as lesbian, gay, bisexual, or transgender (LGBT) may be at an increased risk of being bullied in a school environment. Utilizing the University of Massachusetts Amherst library database, a thorough search was completed to identify articles that assessed bullying aimed at the LGBT population in a school setting. Research indicated that LGBT youth are more likely than their heterosexual peers to experience difficulties, including bullying, in their lives and school environments. In order to help LGBT youth feel emotionally and physically safe, schools must foster a safe environment and provide support services and additional resources. Policy also plays an important role in schools through implementing guidelines and procedures which are designed to prevent violence. We will propose a multi-faceted public health intervention approach that includes a bullying prevention social marketing campaign that could be executed to raise awareness and educate students about the matter to lessen the negative impact on the LGBT population.

199 Room 908 3:30-4:15 Panel 5
Jacqueline A Harris
Eliza Shirazi
Tameka Gillum (Faculty Sponsor)
Department of Public Health, UMass Amherst
Self Harm Amongst Youth: Prevention Through Wellness

Adolescence is a very sensitive stage in a person’s life and since the mind is still malleable, a person’s self-worth and self-esteem can be immensely affected by external factors, such as peers, superiors, and the media. Triggers in society can cause recklessness and withdrawal as well as create mental and emotional distress severe enough that those most at risk for violent behavior may resort to physical manifestations of their insecurities through self-harm, including poisoning, cutting/mutilation and other behavior that is intentionally self-destructive or harming (Webb, 2002). Up to 5-9% of adolescents in western countries report having self-harmed within the year (Skegg, 2005), making this a public health issue. Based on more extensive research on the topic, we aim to help prevent youth from committing self-harm through a tripartite approach of nutrition, wellness, and fitness, which will be highlighted in a social marketing campaign to raise awareness. Social marketing is the idea of using marketing to achieve a positive behavioral change in a specified population that can lead to an overall greater good. The campaign works to help males and females in their teenage years cope with current struggles and develop their self-confidence in a healthy and productive manner. We
created a plan, which can be enacted within schools, that teens can follow for several weeks that involves regimens of healthy eating and exercise. This agenda can be enacted in schools as a method of achieving good physical health and as a mechanism of violence prevention, which betters mental health.

**RADIO-TELEVISION-FILM**

200 Room 163 1:30-2:15 Panel 3
Joanne Elie
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
Documenting Destruction: how auto-destructive art.....

Is the destruction of art based on philosophical views the most effective way of demonstrating the importance of repetitive change through demolishing? Once an object or circumstance is destroyed purposely by an individual, self empowerment and confidence is gained; this will also bring the realization of impermanence. Since all pain is derived from desire and attachment, through relinquishing the power the object seemingly has will set one free. The method that I plan to use to answer my research question is to study different performance artist who have destroyed their work and see how many people they have impacted through this demonstration. As well as following the growth of popular artist who never duplicate their work and their philosophy behind it. Exploring change through destruction on the platform of art and philosophy will expose the importance of spiritual rebirth and the levels of repetition that it may be occurred. I will explore purposeful demolition and how this encourages a breeding ground of change through performance art and excerpts from The Tibetan Book of Living and Dying. The beautiful thing about change is having control over the current revolution of the circumstance and ultimately knowing the final outcome will be exactly what you desire. It is basically the theory of stripping the power from the source and reversing it so that it may serve as an advantage. The results of my research will expose how different personality types are willing or reluctant to subject themselves voluntarily to destroying something of value.

201 Room 163 1:30-2:15 Panel 3
Jared Ghioto
Robert Johnson (Faculty Sponsor)
Department of Communication, Framingham State University
The Story of Lincoln Park - Connecting Communities for 93 Years

From 1894-1987, Lincoln Park in North Dartmouth, Massachusetts, was a place for generations of surrounding communities to coalesce in a 40-acre wonderland of amusement, entertainment, and relaxation. This 20-minute film entitled “The Story of Lincoln Park” seeks to explore the history of Lincoln Park and its function in society as a getaway destination for thousands of people including thrill seekers, passing tourists, and the working class man and his family. Research for this film was conducted through interviews, local newspaper archives, as well as a book entitled “Lincoln Park Remembered” from Spinner Publications. The film follows a chronological order of the park’s history, beginning with its birth as a picnic grove at the end of a fledgling trolley line. The film continues on to discuss many aspects of Lincoln Park, including the growth and expansion of the park, memorable events and performers, notable park employees, the implied “golden years” of the park’s history, and finally the closing of the park in 1987 and the future plans for the land. Hundreds of gathered photographs as well as selections from 45 minutes of archival footage of the park serve as a backdrop to the narrated story of Lincoln Park. The film draws the conclusion that Lincoln Park was a social and economic anchor point for Southeastern Massachusetts, and its closing will forever change the local towns and the people that embraced it.

**RELIGIOUS STUDIES**

202 Room 903 10:40-11:25 Panel 1
Amber Pettell
Vanessa Diana (Faculty Sponsor)
Department of English, Westfield State University
Seeing the Big Picture: Exploring Relations between the Native American Church & Christianity
The Native American Church and the world of Western Christianity are explicitly connected through declarations of similar moral and social intentions based on Christian ideals. However, the relationship between the two religious communities is much more complex than this simple connection implies. The Native American Church, also commonly referred to as the peyote religion, was officially incorporated in 1918. The church’s central and defining practice is the sacramental use of peyote. The peyote ceremony mixes traditional Native elements such as references to Native spirits with Christian elements, and Christianity, though it is not emphasized, is understood as the basis of faith. Some historical and artistic materials show a legacy of conflict and distrust that could potentially impede future relationships between the two communities. Reference works containing historical information as well as scholarly studies based on anthropological and ethnohistorical research show claims of wrongdoing on both sides. Native Americans hold on to the memories of religious persecution, exploitation, and defamation from European powers. Christians on the other hand are bothered by perceived idol worship and sacrilegious practices. One anthropological study even reduces the Native American Church to a product of acculturation. However, a newer model of scholarship and artistry embraces a kind of hybridity that would allow the Native community to fully embrace Christianity and validate the Native American Church in its relationship to Western Christianity. This paper draws on the work of Native writers whose characters reflect such hybridity. This model seems particularly supported by native writers and will allow for potential growth and collaboration between the two religious communities.

SOCIAL WORK

203 Room 101 11:35-12:20 Panel 2
Laura Clifford
Jennifer Propp (Faculty Sponsor)
Department of Social Work, Westfield State University
Kids 4 Harmony Program Evaluation Performed by Westfield State University

This presentation will report on findings from a program evaluation conducted by Westfield State University (WSU) Department of Social Work students for Berkshire Children and Families (BCF). BCF is an organization providing a variety of services to children and families in the Berkshires and surrounding areas. BCF invited WSU’s Social Work Department to involve students, grades K-6, in an evaluation of a new program called Kids 4 Harmony. Kids 4 Harmony is based off music education called El Sistema out of Venezuela aimed at reducing poverty and creating social change through music. Eight senior students from Westfield State University have been involved in the evaluation of the program. Students assisted in evaluation planning, instrument creation, data gathering, and analysis. Their duties included gathering qualitative data through conducting focus groups, one on one interviews with family members of child participants, community stakeholders, and general observations of the program during the week. Additionally students created a quantitative survey for parents to gain pre and post data on the impact the program has had on the child and family. Students analyzed all quantitative and qualitative data. Findings from the year long evaluation will be presented including parent, child, and community perceptions of the program including, strengths and challenges, and the impact of the program on the children and families participating, as well as the surrounding community.

204 Room 911 11:35-12:20 Panel 2
Nicholas Ventura
Richard Sherman (Faculty Sponsor)
Department of Social Work, Salem State University
The United States and Guns: A Love Affair

The Guardian (UK) reports that the United States has the highest gun ownership rate in the world— an average of 88 per 100 people. Over the past 10 years the United States has faced horrible atrocities— mass shootings like the ones at Columbine High School in 1999, Virginia Tech in 2007, Aurora Movie Theater in 2012, and Sandy Hook Elementary School in 2012. We have much more gun violence than similar representative democracies; we respond—at least briefly— to mass shootings, yet till now have taken no concerted action. Meanwhile, we’re unable to grapple with the daily toll from gun violence. One telling characteristic of the modern U.S.A.— how we view the Second Amendment to the Constitution. It reads: “A well-regulated Militia, being necessary to the security of a Free State, the right of the people to keep and bear Arms, shall not be infringed.” Since this amendment was established, the United States has changed from the country it was in the 18th century. One of these changes is a very recent interpretation of the second amendment by the Supreme Court and much of the public, one which entitles, if not encourages individuals to “bear
arms.” This presentation will address the American love affair with guns and our striking homicide rate. It will consider prospects for altering the status quo.

**SOCIOL ogy**

205 Room 908 10:40-11:25 Panel 1

Hannah Colbert  
Geertje Wiersma (Faculty Sponsor)  
Department of Sociology, Salem State University  
The Quest for Immortality: The Hunger Games and Ernest Becker

The quest to acquire wealth, power and prestige drives modern day American society. What fuels our perpetual urge to consume and prosper is the underlying awareness of our own mortality. Although every human is aware of his or her own demise, we seem to go on day by day without giving our inevitable death much thought or concern. It is this repression of death awareness that allows humans to function; if we were constantly conscious of our demise we would be paralyzed with fear. Drawing on theories and key concepts from Ernest Becker’s Denial of Death (Fear of Death, Heroism, and Transference) this study analyzes the series and film The Hunger Games by Suzanne Collins. Selected scenes and excerpts from The Hunger Games portray the drama of human life and death against Becker’s frame of reference. This research concludes that the unacknowledged fear of death is a way to understand the abuse of power, dehumanization and human conflicts that persist across human history. However, there is hope; for even when humans are faced with the terror of death, we can maintain a sense of humanity; and practice compassion instead of violence and love instead of hate. If we understand the toxic relationship between the denial of death and the corruption of power, and awaken ourselves with an awareness of our morality, perhaps humans will at once live among each other in peace.

206 Room 909 10:40-11:25 Panel 1

Dyana Collins  
David Cort (Faculty Sponsor)  
Department of Sociology, UMass Amherst  
Comfort in Question: Are ALANA Students Comfortable at the University of Massachusetts Amherst?

My topic discusses around the comfort and issues that face ALANA (African American, Latino, Asian, and Native American) students who attend the University of Massachusetts Amherst. The University has input programs that will help the retention of students of color at the University. They express very much about how diverse and well-populated that UMASS is, along with hosting different events of diversity for other students to watch and partake in. However, students are still uncomfortable at the University and wish that things could be much better and much more welcome to diversity than meets the eye. So many questions are to be answered: What problems surround ALANA youth when they attend the University? How do they feel uncomfortable and what issues do they contend with in their everyday lives that may not be as noticeable to others? How can we make the school more welcoming to others who are of diversity and perhaps increase the enrollment rate of ALANA students from 21% on, making the school more attractive for other students? How do white students at the University play a role as cultural tourists? In this project, I will be examining the materials that are accessible to students of the ALANA community and white students at UMASS Amherst. I will be doing a literary analysis on different types of literature where investigations have taken place to make schools and education more welcoming. Finally and most important of all, I will be interviewing 5 students from the University who identify as ALANA and asking them about their experiences and what life is like through their eyes here at the University of Massachusetts Amherst.

207 Room 909 10:40-11:25 Panel 1

Katherine Comeau  
G.L. Mazard (Faculty Sponsor)  
Department of Sociology, Fitchburg State University  
The Perceptions of the Efficacy of Mental Health Treatment in Haiti

Haiti’s history of sociopolitical turmoil plus the damaging effects of the recent earthquake increase the difficulty for Haitians to access mental health treatment. My research explores the perceptions of the efficacy of mental health
treatment in Haiti after the earthquake in 2010. I examine the strategies used to provide mental health treatment such as traditional methods or western biomedical approaches. I also explore the availability and accessibility of resources for mental health treatment. Data was collected through qualitative interviews with individuals who have knowledge of the treatment of mental health in Haiti and have written on the subject. Interviews were also conducted with Haitian Americans to learn about their assessment of the effectiveness of mental health treatment in Haiti. Results indicate a preference for community support in Haiti. Haitians also rely heavily upon various religious resources for support. Not only is the support of the community and religious leaders perceived as more effective, but these treatment strategies are more sustainable then psychopharmaceuticals.

**SOCIOLoGY, ANTHROPOlOgy, AND CRIME AND JUSTICe STUDIES**

208 Room 909 10:40-11:25 Panel 1
Rebecca Rowe
Robin Robinson (Faculty Sponsor)
Department of Sociology, Anthropology, and Crime and Justice Studies, UMass Dartmouth
Motivations and Meanings of Pre-gaming

The purpose of this study is to explore social motivations for a common college drinking ritual known as “pre-game” drinking. For this study, pre-game drinking has been defined as students drinking alcoholic beverages, usually at their residences or at friends’, before leaving for an event where there may or may not be alcohol. Student drinking is common on college campuses, with the National Institutes of Health reporting that more than 80% of college students drink alcohol. Previous studies of motivations for pre-game drinking usually point to economic motivations and only include student perspectives. They have not addressed in depth the possible social motivations for this behavior such as conforming to college culture and fitting in with groups of friends. This study draws on staff as well as student perspectives using focus groups and written surveys to deepen understanding of pre-game drinking and its social meanings. Findings suggest that the majority of drinkers at a medium-size public university in the northeast are also pre-gamers, and the social motivations underlying pre-game drinking behavior. These findings can serve to help staff and students better understand the behavior and in turn recognize its risks and ways to minimize those risks.

209 Room 911 11:35-12:20 Panel 2
Johanna Sutliff
Enrique Morales-Diaz (Faculty Sponsor)
Department of Spanish, Westfield State University
Why The DREAM Should Pass: Nativism Behind Immigration Policies

This research paper will focus on the current debates surrounding the DREAM Act. Besides discussing various aspects of the DREAM Act, I will also focus on nativism. Despite there being an equal list of pros and cons connected to the bill, the cons seem to be rooted in nativistic-fueled ideology. Nativism is anti-immigration racism, where being a white Anglo-Saxon has been a privilege in the country for centuries (Chomsky xiv). Nativism happens all around the globe, but in the United States—which prides itself on its democratic values—has a very complicated history to say the least. All throughout the United States’ history, there has been an atmosphere of xenophobia that has created immigrant scapegoats. By looking at the United States’ history of naturalization and immigration policies with a special light on the current Latino population, it will become evident that nativism has been the culprit for our nation’s social and economic burdens—rather than immigrants, who are typically seen as the cause of the nation’s problems. The DREAM Act would be the first stepping stone to counteract the historically nativistic immigration policies and would rebuild communities by not breaking apart families. By giving those that also consider themselves ‘Americans’ the chance to continue their education and the tools to become successful individuals, the DREAM Act would ultimately help the country.

**SPANISH**

210 Room 903 3:30-4:15 Panel 5
Michelle Wade
Harley Erdman (Faculty Sponsor)
Department of Theatre, UMass Amherst
Imitate your Enemy by Tirso de Molina: An English Translation from the Spanish Golden Age
Del enemigo, el primer consejo is a Spanish comedia written by Tirso de Molina, a prolific Spanish playwright who wrote during the Siglo de Oro, a period between the fifteenth and seventeenth century during which arts and literature flourished in Spain. Previously untranslated, this play follows two main characters as they willfully manipulate the mechanics of human affections - and the people around them - in the hopes of fooling themselves into love, thereby appeasing the king and retaining control of their fortunes. Despite cultural distance, separated in both time and location, this play has the power to speak to a modern audience because the text, though at times comical, speaks truthfully to the often dark and complicated nature of the human spirit. Crafted with the assistance of native speakers as well as scholars of Spanish, translation, and theater, this English translation, Imitate the Enemy, seeks to provide a new audience with access to this work of Tirso de Molina.

WOMEN’S STUDIES

211 Room 917 10:40-11:25 Panel 1
Stephanie Bonvissuto
Chris Bobel (Faculty Sponsor)
Department of Women’s Studies, UMass Boston
Stuck in Transit: Managing Gender Identity during Arrested Gender Transition

This research investigates the management of gender identity by male-to-female and female-to-male transsexuals who initiate gender transition with the intention of undergoing gender reassignment surgery yet find their processes arrested due to circumstances beyond their control, thereby locating them in a seemingly perpetual liminal state. Popular discourse, such as the public transition of Chaz Bono, Jennifer Finney Boylan’s autobiographical “She’s Not There,” Kate Bornstein’s “Gender Outlaw: Of Men, Women and The Rest of Us,” the LOGO documentary “TransGeneration” and the Oscar-nominated film “Transamerica” currently describes the transsexual experience as a highly personalized journey. Ascription of one’s birth gender is followed by self-realizations of incongruence between one’s gender identity and outward physical attributes. Medical and psychiatric literature prescribe a particular route for subsequent gender transition (“Standards of Care,” 2012; Levine, 2009). Resolution to the aforementioned gender dysphoria is sought through a renunciation of one’s birth gender and tentative acceptance of one’s transsexual status, followed by an experiential semi-public transition that includes hormone replacement therapy and a period of living full-time in one’s intended gender. This culminates in various medical procedures, such as gender-reassignment surgery, and a final re-introduction back into society as one’s envisioned and intentional gendered self. Yet not all transsexuals undergoing this particular gender transition can or will reach this outcome. Examples include (but are not limited to) the lack of or sudden loss of finances, or medical conditions which impede invasive surgeries. Thus transsexual gender transition, proposed to be an impermanent phase, now becomes a long-term, and perhaps permanent, reality. Prior cross-sectional research has examined the various states of gender identity formation of transsexuals prior to, while in the process of undergoing, and post gender transition, yet there has been scant research concerning those transsexuals who cannot follow through their transitions and therefore find themselves in a restrained liminal state during this rite-of-passage (Van Gennep (1960); Turner (1867); Bolin (1987)).

212 Room 811 11:35-12:20 Panel 2
Tracy Gebhart
Alexandrina Deschamps (Faculty Sponsor)
Department of Women’s Studies, UMass Amherst
International Connectivity: A Cross-Cultural Exploration of the Context and Meanings of Disability Inclusion and Feminist Activism in the Netherlands, Germany, and the United States

Though international feminist and disability activist movements exist as organized campaigns to create more inclusive and egalitarian societies, the two fields operate within distinctly separate silos. In response, the following research focuses on the development of political resistance in the sphere of disability rights in the United States of America, Germany, and the Netherlands to prove that a community for and a political agenda by the disabled is not only defined by cultural, social, political, and historical aspects of its host country, but also by its relationship to and with feminism. This research has three objectives 1) to define, politically and socially, the concept of disability in each country 2) to use those definitions to compare each country’s respective disability and feminist activist legacies 3) to examine each country’s use of academics to resist ability and gender based discrimination. Using community surveys and interviews,
public policy analyses, feminist theories, and disability theories, this project seeks to provide an academic bridge between the principles of gender and disability studies in an international context.

213 Room 911 3:30-4:15 Panel 5
Megan Lieff
Laura Briggs (Faculty Sponsor)
Department of Women's Studies, UMass Amherst
Rape and Sexual Assault in the BDSM Community

BDSM (bondage/discipline, dominance/submission and sadomasochism) practitioners have had to fight accusations that BDSM is inherently abusive, especially to women. Though BDSM practices are generally consensual, genuine assault has undoubtedly occurred within the BDSM community. My research focuses on how this assault has been handled by community members: how survivors and perpetrators are treated and how conversations around sexual assault exist alongside the language of consent. In order to explore these issues, I am historicizing the issue of rape in the BDSM community by examining academic and activist writing in three periods, from 1970s to present. I am examining how changes in our culture since the 1970s - such as the removal of consensual SM from the Diagnostic and Statistical Manual (DSM) - have impacted how writers in the kink community presented themselves as a community, as well as at how they addressed sexual assault internally, in private community spaces. My initial research suggests that the advent of BDSM communities online has had a huge impact on sexual violence awareness within the BDSM scene. Prior to the existence of groups such as alt.sex.bondage on Usenet, nearly all conversations around rape and BDSM came from a subset of the feminist community interested in debating the consensual nature of kink. More recently, however, some feminist BDSM activists have been using the internet as a means to question treatment of assault and violence in their community, in a more public way than has previously been possible.

214 Room 911 3:30-4:15 Panel 5
Jennifer Moore
Banu Subramaniam (Faculty Sponsor)
Department of Women's Studies, UMass Amherst
A Research-based Approach to Improving Trainings for LGBTQ Health Providers

Access to and quality of healthcare is important for everyone. Yet in the United States, there are significant barriers to access high quality care. One of the most obvious barriers is financial, as a wide range of research has demonstrated, but there are also social and structural barriers that are less well understood, and which affect some social groups more than others. People who identify as LGBTQ (lesbian, gay, bisexual, transgender, or queer) are among those individuals that have difficulty accessing high quality and culturally sensitive healthcare. Current research suggests that an insufficient number of healthcare providers dealing with LGBTQ issues as part of the provision of health care, and lack of culturally appropriate prevention services, are among the barriers faced by this population of people. Research shows that, a result, LGBTQ individuals are less likely to access health services than their heterosexual peers. This research project contributes to making healthcare more accessible to the LGBTQ population by investigating the value of an extant and mandatory LGBTQ sensitivity training program provided to all volunteers and staff members of Safe Passage, a domestic violence agency located in Northampton, Massachusetts. To locate gaps in knowledge in the staff and volunteers of Safe Passage, a questionnaire was distributed to all volunteers and staff members, and interviews were conducted with several staff members. The survey results were used to create a report, which was used to update Safe Passage's LGBTQ sensitivity training, and to make recommendations for new training materials to be included in the updated training, so as to be consistent with the most current public health and LGBTQ health scholarship.
POSTER SESSION

ACCOUNTING

215 Auditorium 11:35-12:20 Board 9A
Amber Eusebio
Steven White (Faculty Sponsor)
Department of Marketing, UMass Dartmouth
Beyond Accounting- Measuring for the Triple Bottom Line

This paper introduces the idea of Triple Bottom Line Accounting (TBL Accounting). TBL Accounting includes financial, environmental, and social factors. Currently, no uniform standard or required disclosure of TBL Accounting exists. Unlike the United States Generally Accepted Accounting Principles, there are no generally accepted principles regarding the accounting standards for the triple bottom line. This paper investigates the TBL accounting practices of EMC Corporation, a Massachusetts-based company that is on track with being financially, socially, and environmentally conscious. EMC publishes an award winning carbon emissions report, utilizes social responsibility in its supply chain management, and has developed global standards for excellence in health and safety management. Other well-known companies, such as Johnson and Johnson, publish their own form of a triple bottom line report. Using EMC as a case study, this research proposes an index of measures for TBL Accounting and compares the proposed measures with EMC’s TBL Accounting report. Based on the proposed measures, suggestions and improvements to commonly used TBL Accounting standards are offered. Thus, the purpose of the research is to serve as a basis for establishing a framework of standardized TBL Accounting procedures and practices. An area of major concern is the readability of the current TBL Accounting reports. For example, EMC’s report is lengthy and verbose. We propose a report that shows more metrics, measures and comparative benchmarks and fewer paragraph explanations. The benefit of using the proposed standardized report is that it allows for comparison of performance across industries.

216 Auditorium 11:35-12:20 Board 11A
Daniel Hartford
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
Researching the Value of Sustainability Reporting

The growing popularity and accessibility of company Corporate Social Responsibility (CSR) reports has provided external users of financial information with a wealth of new information regarding the economic, social, and environmental standing of a firm. This information is important to those who believe these values are an essential part of a successful future businesses and the global economy as a whole. The efforts of the Global Reporting Initiative (GRI) throughout the past decade have given CSR reporting a standard, along with a database that can be used to research the social standard of international companies. A GRI report is not required by firms, but the growth in popularity of such a report suggests that there is demand for this type of information. Through my research I hope to establish if this demand is accompanied by value and relevance within the marketplace. To accomplish this, I will be analyzing a sample of North American public company CSR Reports dated from 2007 to the present day. I will be looking at their related stock market activity in comparison to similar companies that do not report such information as rigorously. I will also be examining supply chain management, consumption, etc., to discover certain performance indicators that are more important than others. I hypothesize that simply reporting on sustainability will not give a company an advantage over a similar company who does not report. However, I do expect to see the more specific metrics having a greater bearing on a company’s market standing.

217 Auditorium 11:35-12:20 Board 10A
Chen Zhao
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
Common Signs and Motivations of Earnings Management

Earnings management is defined as attempts of management of a company to manipulate its earnings through using certain accounting methods that allow the company to change its reported earnings in the financial statements. For
example when Management manipulates accounts to make earnings to meet investors’ expected returns. This paper will investigate several common signs of earnings management. I am going to gather data from companies’ financial statements and AAER, categorize data by industries, and analyze which industries have a relatively high frequency of earnings managements by using statistical regression tools. This paper will also examine if earnings management is triggered by a firm experiencing lower earnings as compared to previous years or an industry benchmark. Motivations for such manipulating behaviors are also investigated. I will analyze potential benefits that managers can get from such behaviors by examining data about components of top managers’ payments such as the percentage of their performance-dependent salary to total compensation. Based on literature review, the expectation is that results from my study will show that if a part of managers’ payment depends on the company’s financial performance, managers have motivation to manage earnings. Moreover, I expect to find that the higher the percentage of performance based salary, the more motivated the managers. Conclusively, this paper is going to provide investors with strategies to avoid making bad investment decisions.

ADVERTISING

218 Auditorium 11:35-12:20 Board 12A
Joshua DeFronzo
Steven White (Faculty Sponsor)
Department of Marketing, UMass Dartmouth
Inbound Marketing: Social Media Video Series

Social Media Marketing (SMM) is gaining more attention from large and small businesses alike. Using SMM to engage in conversation with one’s customers or potential customers drives interest, loyalty and increased sales. For my senior honors project, I developed and implemented a unique social media marketing campaign for my current place of work. Since the age of 16, I have worked for my uncle’s chain of liquor stores in Attleboro, Massachusetts. My primary reason for attending college is that I hope to one day own the stores, to contribute positively to the regional economy and to provide the same type of lifestyle to my future family that my uncle provides to his family. Our stores offer a “Beer of the Month” special that presents customers with an opportunity to purchase a Micro-Brewery beer (craft beer) at a discounted price. Included with purchase is a matching pint beer glass for the brand featured. This promotion effectively brings the same customers back into the stores every month to expand on their craft beer expertise and to build their glass collection. As a business major, I understand that a small percentage of loyal, returning customers account for the majority of sales (Pareto Principle: 80/20). Thus, the focus of my research is to increase the number of loyal returning customers and to increase sales and profits. Each month, I have the responsibility of researching the pre-determined Beer of the Month and presenting my selection to our customers. SMM offers the best opportunity to communicate with a large audience of current and potential customers at an affordable price. The primary vehicle for delivery of our SMM promotional efforts is our Facebook page for City Spirits Liquors, a page that I created and manage for this project. To make our SMM effort more personal, I write, film, edit, publish and post a series of 3-6 minute videos designed to highlight the look, smell and taste of the craft beer selected. In essence, I provide a product review of the selected craft beer and our customers have the opportunity to comment on the review and to engage in conversations with other customers regarding the featured beer. The benefit of using social media to connect with our audience is the availability of measures and metrics. Thus, data drives our level of engagement and allows us to monitor the success of the campaign. This research contributes to the economic development of small businesses within Massachusetts by providing a template of successful social media engagement that costs little more than time and effort. Included in the template is an explanation of the measures and metrics available for determining campaign success.

ANIMAL SCIENCES

219 Auditorium 9:00-11:00 Board 13A
Brenda Lopez
Randi Darling (Faculty Sponsor)
Department of Biology, Westfield State University
Long-term memory in the common goldfish

Authors: Dr. Randi Darling, Brenda Lopez, Khrystyna Mitchell, Emily Asp The common goldfish, Carassius auratus, is
a social fish native to China. The eye of the common goldfish has two cones which absorb wavelengths that range from 467 micrometers (blue) to 620 micrometers (orange/red). Results from previous studies have shown that goldfish are able to retain memory for up to three months (Henderson, 2003). To examine long-term memory, 25 goldfish were divided into two groups (experimental and control). The experimental group was trained to associate a red colored partition with food, while the control group was not trained to associate any color with food. A testing period consisted of placing two partitions (red and blue) in both the control and the experimental tanks. It was hypothesized that the goldfish that were trained to associate a red partition with food would swim through the red partition more frequently than the blue partition. We also hypothesized that the control group would not exhibit any preference for either colored partition. Results for the experimental group showed that fish significantly preferred the red partition (p=0.00085), while the results for the control group showed no significant preference for either partition (p=.1115). Our results indicate that goldfish did display the ability to learn and retain memory.

**220 Auditorium 9:00-11:00 Board 14A**

Shaun Polissack  
Nirvana Filoramo (Faculty Sponsor)  
Department of Biology, Worcester State University  
**Morphology and Function of Cephalic Glands of Ramphotyphlops braminus**

Ramphotyphlops braminus is a squamate reptile that has distinctive glands deep to the cephalic scales. A member of family Typhlopidae, R. braminus is a species of blind snake that lives underground and feeds on invertebrates. Through descriptions from serial sections and comparisons to published literature, this project is currently researching the morphology and function of these special cephalic glands of R. braminus. Donated specimens were processed and embedded in paraffin wax, and sectioned using histological techniques. Cephalic sections were stained with hematoxylin and eosin, and then observed using compound bright field microscopy. Our working hypothesis is that cephalic glands of R. braminus produce excretions to help burrow into soil and other organic matter. This description of the histology of these glands may support this hypothesis, or point us in a new direction for a possible function of these unique cephalic glands found in Typhlopidae.

**ANTHROPOLOGY**

**221 Auditorium 11:35-12:20 Board 15A**

Marven Cantave  
Elizabeth Dunphy (Faculty Sponsor)  
Department of Biology, Bunker Hill Community College  
**Ritualistic Power Acquired Through Dreams: The Practices of Parry Island Ojibwa Medicine Men**

The purpose of this study is to identify several main components of the Native American worldview and apply its significance to the phenomena of dreaming. We will approach this objective from an anthropologic and ethnographic perspective that focuses on three classes of medicine men among the Ojibwa of Parry Island in Canada who were surveyed during the early 1920’s. The sources used for this study were primarily ethnographic in nature; they relied heavily on direct observation by the anthropologist and first hand testimony by the Native American informant(s). What was discovered were ritualistic practices that “genuine” medicine men learned through supernatural contact (i.e. dream fast/continued dreaming) and applied during waking life.

**ART**

**222 Auditorium 11:35-12:20 Board 16A**

Emily Keohane  
Mark Millstein (Faculty Sponsor)  
Department of Art, UMass Dartmouth  
**Animation Graffiti**

I want to take animation off the screen. I feel like it can be more incorporated into peoples’ lives and their surroundings. People are getting more attached to the computer and smart phones so digital media is a big part of their lives, but in a negative way. They are becoming less social. I want to bring animation out into the world in hopes
that people will have more interaction with the world. I’ve done a lot of thinking about objects that have inherent motion and how to animate on them. I thought a box fan would be a common enough object for people to replicate my experiment. I used the Internet to research different ways of how to change the speed of a box fan and tested out my animation in Photoshop to see what speed I should set the fan to make a five-frame animation have motion. Then I will cover the fan completely with a board, but have a window cut out so the animation can be seen. The result of this work will have turned a box fan into a kinetoscope. The Blue Man Group put up a frame by frame ad on the wall of a subway tunnel, so when the T drove past it was in motion. I’ve never seen anything like that before or since. Our world is full of motion and I’d like to see it colored with animation. Not for commercial purposes but for the sake of art.

ASTRONOMY

223 Auditorium 11:35-12:20 Board 26A
Victoria Barton
Stephen Martin (Faculty Sponsor)
Department of English, Bristol Community College
Astronomy for the Deaf and Blind.

The project addresses challenges of learning astronomy for the hearing and visually-impaired. For example, it is difficult for deaf students to follow the narration and class participation in dark environments such as the planetarium and stargazing at night. Are there ways to adapt to these situations and plan to expand the repertoire of astronomy resources available to hearing-impaired students? An astronomy resource toolkit will serve the needs of visually- and hearing-impaired students in the future.

224 Auditorium 11:35-12:20 Board 25A
Sarah Nelson
Stephen Martin (Faculty Sponsor)
Department of English, Bristol Community College
Astronomical Applications of the Collective Unconscious

Is there a possible connection with the cosmos to our lives? Using Carl Jung’s collective unconscious and synchronicity theories, as well as Richard Tarnas’s Cosmos and Psyche, this project will propose that planetary and constellation alignments coincide with the collective unconscious theory and archetypal astrology. In addition, personal journaling will monitor significant events in life, while reflecting on the research in determining any correlations. Can one sketch the placement of the Virgo constellation and any planets of significance and match these to the important events occurring in life, and find resulting insight, wisdom, and Truth?

BIOCHEMISTRY

225 Auditorium 11:35-12:20 Board 13A
Kelly Carreiro
Catherine Neto (Faculty Sponsor)
Department of Chemistry, UMass Dartmouth
Inhibitory effects of cranberry polyphenols on NOX4 oxidase expression in bovine aortic endothelial cells

Cardiovascular diseases (CVD) are one of the leading causes of death among Americans. Studies have shown that polyphenol-rich foods such as cranberries may be effective in reducing some of the major factors promoting CVD and other diseases, such as oxidative stress. Free radicals that are produced by the body in response to stress are known to contribute to CVD. The goal of this project was to determine if cranberry polyphenols inhibit the activity of NOX4 (NADPH oxidase), an enzyme responsible for cellular free radical production that may contribute to CVD as well as whether they protect cells from stress-induced cell death. Cranberry fruit extracts were examined for their ability to protect human umbilical vein endothelial cells (HUVECs) from oxidant induced cell death utilizing a simple method with trypan blue. Additionally, the extracts were tested with bovine aortic endothelial cells (BAECs) using the Red Amplex assay, which indirectly measures H2O2 production by means of the fluorescent molecule, resorufin. The fluorescence was measured at an excitation of 570 nm and an emission of 585 nm. Whole cranberry extract and isolated polyphenolic compounds including flavonols, proanthocyanidins (PACs), and anthocyanins were tested on
the cells at a concentration of 5 ug/mL to determine whether cranberry compounds can inhibit NADPH oxidase. The cells were infected using NOX-4 and GFP adenoviruses, where GFP was the control and NOX4 was the variable. GFP is a fluorescent protein that when translated by the cell radiates a green color under a fluorescent microscope and was used as a marker to indicate that the infection was successful. Theoretically, cells infected with NOX4 will have a much higher production of pro-oxidant H2O2 as compared to the GFP. This experimental design will allow for a clear observation of NOX4 inhibition. The results suggest that both flavonols and anthocyanins are effective in decreasing the radical production. However, it must be noted that the infection of the cells with NOX4 and GFP is still not optimum and therefore further experimentation is needed to yield quantitative data on the ability of cranberry polyphenols to inhibit NOX4. We are working with Dr. John Keaney’s lab at UMASS Medical School to optimize experimental methods for cellular expression of NOX4 and to obtain quantitative inhibition data.

226 Concourse 1:30-2:15 Board 51C
Kristina D’Amico
Greg Beck (Faculty Sponsor)
Department of Biology, UMass Boston
Synthesis and Evaluation of a New Class of Antibacterial Compounds

As the availability of new generation antibiotics is in decline, there is a growing interest in developing new types of compounds to address the rising concern of bacterial resistance. In order to contribute to the solution of this important problem a systematic evaluation of a diverse small molecule library of considerable size is in progress in our laboratories. The first notable group that emerged from the initial screening is bisaryl hydrazones. The compounds have been synthesized by the condensation of a broad variety of aryl aldehydes and aryl hydrazines. All compounds have been properly purified by recrystallization or column chromatography and characterized by mass spectrometry and 1H, 13C and, when applicable, 19F NMR spectroscopy. The compounds have been tested in standard cytotoxicity assays using Escheriscia coli, Micrococcus luteus and Staphylococcus aureus strains. Overall a library of 46 hydrazone derivatives has been evaluated in these assays. The initial data are very promising the hydrazones exhibited up to 70% cytotoxicity in the assays. The effect of the compounds on the bacteria applied varied, the strong cytotoxicity was commonly observed selectively, against one or the other bacteria.

227 Auditorium 9:00-11:00 Board 16A
Rahul Gantyala
Craig Martin (Faculty Sponsor)
Department of Chemistry, UMass Amherst
Promoter Binding Affinity of T7 RNA Polymerase

To initiate transcription, RNA polymerases must distinguish specific promoter sites from the myriad of nonspecific binding sites. These non-promoter sites compete with promoter specific binding sites. A region of the model RNA polymerase from bacteriophage T7 that binds and stabilizes the nascent RNA during transcription has been proposed to also allow nonspecific binding prior to initiation. In order to assess the true binding affinity of the RNA polymerase for its promoter, I will create single and double point mutations in the 179 and 180 region (K179L and K180S) of the protein to create an RNA polymerase that eliminates these nonspecific interactions, unmasking the true promoter binding affinity. Using fluorescence anisotropy I will then be able to create an assay to measure the intrinsic Kd and directly determine the binding affinity of T7 RNA polymerase for its promoter, without nonspecific binding.

228 Auditorium 11:35-12:20 Board 14A
William Horton
Greg Beck (Faculty Sponsor)
Department of Biology, UMass Boston
Synthesis and Evaluation of a New Class of Antibacterial Compounds

With the dramatic shift in medical research to identifying new cancer treatments, antibiotics have slowly been losing focus in the research field. Research into antibiotics has declined proportionally to the increase in cancer research, yet bacteria continue to develop resistance to our current antibiotics. This experimental study is designed to screen a library of molecules that our laboratory has access to. The 79 compounds screened so far were properly purified through column chromatography or recrystallization and then characterized by mass spectrometry and NMR spectroscopy.
when applicable. The various compounds were screened through standard cytotoxic assays utilizing bacterial strains of Escherichia coli, Micrococcus luteus and Staphylococcus aureus. The screening process has identified promising compounds such as hydrazines and benzaldehydes with cytotoxic percentages ranging from 40% to 80%. However, the data suggests that the strength of the cytotoxicity varied with regards to the bacterial strain.

229 Concourse 1:30-2:15 Board 49C
Shaul Kushinsky
Scott Garman (Faculty Sponsor)
Department of Biochemistry, UMass Amherst
A Global Model for Pharmacological Chaperone Responsiveness in Lysosomal Storage Diseases

Lysosomal enzymes are proteins found in the lysosome which are responsible for the catabolism of macromolecules. If one of these enzymes ceases to function properly, usually due to a genetic mutation, a toxic buildup of substrate will occur, resulting in a lysosomal storage disease. A potential treatment for lysosomal storage diseases is pharmacological chaperone therapy, which provides a small molecule to assist in protein stabilization. An extensively studied lysosomal storage disease is Fabry disease, caused by a loss of function of alpha-galactosidase. There is currently a pharmacological chaperone treatment in phase 3 clinical trials for certain forms of Fabry disease. To predict which forms of the disease are treatable by pharmacological chaperone therapy, two predictive models have been developed based on the behavior of mutant alpha-galactosidase0 in the presence of pharmacological chaperones. One system is based on the structure of the protein, and the other system scores the variability of a particular residue by comparing the target protein to homologous structures. Since many lysosomal storage diseases are potentially treatable by pharmacological chaperones, we hypothesize that the predictive models are applicable to other lysosomal storage diseases. The result of this application will be a list of mutations that should be treatable by pharmacological chaperone therapy. Eleven lysosomal enzymes with known molecular structures were analyzed using the predictive models. In all eleven, there were some mutations that were predicted to respond to pharmacological chaperones, some mutations that were predicted to not respond to pharmacological chaperones, and some mutations that could not be classified under the current model. Further analysis is being undertaken in order to improve accuracy of predictions. By applying the rules developed for the treatment of Fabry disease to other lysosomal storage diseases, scientists will be able to pursue a more successful avenue of treatment.

230 Auditorium 9:00-11:00 Board 15A
Kari Phan
Derek Lovley (Faculty Sponsor)
Department of Microbiology, UMass Amherst
The Effects of Knocking Out the Genes bamV and bamW in Geobacter metallireducens on the Degradation of Aromatic Compounds

Geobacter metallireducens is an obligate anaerobe and it was the first organism to be found to oxidize organic compounds to carbon dioxide by using Fe (III) as the terminal electron acceptor. Recently, the bamV-W, two-component system was identified. It has been predicted that bamV encodes for a membrane bound histidine sensor kinase which senses benzoate and other aromatic compounds while bamW encodes for DNA binding response regulator, which induces the gene(s) responsible for the degradation of the aromatic compounds. In two-component signal transduction system, the sensor kinase phosphorylates the cognate response regulator that induces a conformational change and allows it to bind to the promoter regions to regulate gene expression. The deletion of these genes will be studied on an overall regulation on various genes that are responsible for the oxidation of aromatic compounds. The mutant alleles for the gene knockouts for both bamV and bamW were constructed in E. coli through allelic replacement of bamV and bamW by Sp::loxP. The bamV and bamW deletion mutagenesis were achieved in Geobacter metallireducens by linear DNA electroporation. Once the constructs were obtained they were grown in different electron donors, such as benzoate, cresol, phenol, and toluene. The reduction of iron due to growth was quantified with the ferrozine assay. It was seen that the growth was impacted on the cresol substrate when the bamV was deleted.

231 Auditorium 9:00-11:00 Board 19A
Bradley Quade
Lila Gierasch (Faculty Sponsor)
Department of Biochemistry, UMass Amherst
Biophysical Studies of Hsp70 Chaperone Proteins
The 70 kilodalton heat shock protein (Hsp70) family of molecular chaperones is important to cellular function due to their central role in maintaining protein homeostasis. This family has been implicated in cancer and many neurodegenerative diseases that result from misfolding or aggregation of proteins, so upregulation of this chaperone could ameliorate symptoms of those diseases. Hsp70 family chaperones consist of two domains, a 44 kDa nucleotide binding domain (NBD) and a 26 kDa substrate binding domain (SBD). These chaperones function in the cell using a unique allosteric cycle where communication between domains is modulated by substrate binding and nucleotide hydrolysis/release. These domains are connected by a short, flexible linker whose unbinding to the NBD, in conjunction with disruption of the NBD/SBD interface, stimulates ATP hydrolysis. The current model for allosteric communication in the NBD suggests that Arg151, Pro143, and Glu171 form a hydrogen-bonding relay that signals nucleotide hydrolysis in response to linker unbinding. In order to test this, a variety of biochemical techniques have been used. Site-directed mutagenesis was used to make soft mutations in Pro143 and Arg151. In this case Pro143 was mutated to valine and Arg151 was mutated to lysine. Heat shock assays were also run to determine the viability of E. coli with the mutant Hsp70. After purification of these mutants was performed, tests were used to determine how these mutations affect the allostery of Hsp70. Malachite green ATPase assays were used to measure the rate of ATP hydrolysis and intrinsic tryptophan fluorescence was measured to determine whether or not domain docking was occurring. Research is ongoing, but initial results suggest that the P143V mutation disrupts linker binding, resulting in significantly decreased protein function. On the other hand the R151K mutation disrupts domain docking, resulting in a significantly increased ATPase rate, but decreased functionality.

232 Auditorium 9:00-11:00 Board 20A
Gagandeep Singh
Peter Chien (Faculty Sponsor)
Department of Biochemistry, UMass Amherst
Morphological Effects on Caulobacter crescentus by Non-degradable PleC

The model organism of my research is Caulobacter crescentus. C. crescentus undergoes asymmetric division, and undergoes a cell division cycle with well defined G1, S, and G2 phases. Because of these characteristics, and the ability of C. crescentus to be synchronized, they serve as an ideal system for defining a cellular life-cycle that gives insight into the workings of more complicated systems, such as the cell cycle of eukaryotes. One method of Caulobacter cell cycle regulation is protein degradation by proteases such as ClpXP and ClpAP. I specifically worked with the protein PleC, which is a phosphatase involved in the phosphotransfer pathway, which ultimately regulates the master regulator, CtrA. My research aimed to demonstrate whether PleC is a substrate for recognition by the unfoldases ClpX and/or ClpA, and if recognition is contingent upon the C-terminus of PleC. I also aimed to demonstrate whether the PAS domain of PleC serves as a recognition site for CpdR mediated degradation by ClpXP or ClpAP; similar to the function of the PAS domain during PdeA degradation. Finally, I aim to demonstrate how the inability to degrade PleC affects the in vivo morphology of C. crescentus under stress conditions, such as carbon starvation.

233 Concourse 1:30-2:15 Board 50C
Sarah Tarullo
Scott Garman (Faculty Sponsor)
Department of Biochemistry, UMass Amherst
Increasing the Stability of Lysosomal Β-galactosidase using Small Molecule Inhibitors

Lysosomal storage diseases are genetically inherited diseases caused by the dysfunction of lysosomal enzymes. In a normal cell, lysosomal enzymes cleave specific macromolecules as they are transported to the lysosome. However, in diseased cells, these lysosomal enzymes are either absent or malfunctioning, causing the macromolecular substrate to accumulate, becoming toxic to the cell. Over fifty lysosomal storage diseases have been identified, occurring in one out of 7,700 live births. Currently, the most common treatment for these diseases is enzyme replacement therapy, involving an intravenous infusion of synthetic enzyme on a weekly or bi-weekly basis. An alternative treatment option we are exploring is pharmacological chaperone therapy, which relies on the use of inhibitory small molecules binding to the active site to shift equilibrium toward folded protein, allowing for normal function. The pharmacological chaperone would be given orally, an easier and less expensive method of delivery. The lysosomal enzyme we will be investigating is Β-galactosidase (β-gal). β-gal is responsible for the cleavage of β-linked galactose residues from glycoproteins, sphingolipids, and keratan sulfate. When β-gal activity is deficient it can result in two diseases: GM1-gangliosidosis or Morquio B disease. We have tested compounds in enzymatic inhibition assays to identify tight-binding competitive
inhibitors. To find a structural and chemical explanation of the results of the inhibition assays we will perform x-ray crystallography to confirm the binding on the molecular level. We will also confirm the increased stability of α-gal when bound with chaperone by performing thermal denaturation and limited proteolysis of α-gal both with and without compounds bound. The results of these experiments will provide insight into potential small-molecule therapeutics for lysosomal storage diseases.

234 Concourse 1:30-2:15 Board 52C
Ying Qi Zhang
Peter Chien (Faculty Sponsor)
Department of Biochemistry, UMass Amherst
Complex response regulator activation explored through mutagenic approaches

Regulation of protein degradation is critical for life and is especially important when cells undergo developmental changes. In Caulobacter crescentus, asymmetric cell division yields biochemically distinct swarmer (SW) and stalked (ST) cells. SW cells cannot replicate, while ST cells are capable of cell division; therefore sustained growth requires SW cells to first differentiate into ST cells. This transition requires several regulatory proteins: the response regulators CpdR and the essential AAA+ protease ClpXP. The function of CpdR is to localize ClpXP to the cell pole and to adapt phosphodiesterase (PdeA) for degradation. The mutation of a key histidine in CpdR (H104) affects its function in modulating the protease ClpXP. Our project focus was to identify intragenic suppressors that activate defective mutant CpdR alleles. We hypothesize that there might be intragenic suppressors of mutations that can restore the function of the mutant CpdR, supporting the conformational change model for response regulator activation. Our preliminary work showed that mutation at D9 residue restores the function of mutant CpdR.

BIOENGINEERING

235 Auditorium 9:00-11:00 Board 27A
Isaac Han
Shelly Peyton (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Metastatic Breast Cancer in Engineered Microenvironments

1 in 8 women will develop breast cancer at some point in their lives. It is the most common cancer that affects women, and is responsible for the deaths of over 40,000 people a year in the United States alone. 90% of these deaths are attributed to metastasis: secondary tumors formed by cells that travel from the primary tumor in the breast, to distant sites across the body. Interestingly, these secondary tumors seem to exhibit a preference for certain organs depending on the origin of the primary tumor. This tissue-specific preference was originally observed over 100 years ago as the ‘Seed and Soil Hypothesis’, and despite advances in our understanding of other aspects of breast cancer the biochemical mechanisms that influence secondary site preference are not yet clear. Cancer cells that have reached the point of metastasis have undergone thousands of mutations, which make using classical molecular biology methods extremely difficult to use. In this study, we have bypassed some of the obstacles associated with using molecular biology by incorporating techniques from other disciplines into the toolbox. Using chemical engineering we have created Metastatic Engineered Tissues (METs), which can replicate the physical and chemical characteristics of the extracellular matrix (ECM). We hypothesize that ECM protein differences between tissues has an influence on secondary site preference, and by seeding breast cancer cells onto METs we can observe migratory and adhesive behavior via confocal microscopy. So far our preliminary data indicate differences in migratory and adhesive behavior dependent on cell-line and MET. Among our experiments includes a comparison between bone-tropic metastatic cells and their less-specific parental cell line. We found that the bone-tropic cells exhibit smaller cell surface area on brain METs while showing much higher migration speeds on lung METs. Although the precise significance of these findings are not yet clear, we have demonstrated that it is possible to observe differences in cell behavior real-time on synthetic substrates engineered to mimic in vivo environments. We will also continue our MET experiments and gather more data, which will hopefully provide insight into new treatment modalities for metastatic breast cancer.

236 Auditorium 11:35-12:20 Board 18A
Shayla Thomas
Susan McPherson (Faculty Sponsor)
Genetically Modified Food

One in three adults in the United States is obese. Around the world we are seeing a dramatic increase not only in weight, but also the illnesses that accompany them: heart disease, diabetes, and hypertension, to name a few. At the same time, almost one in every seven people are experiencing hunger due to unavailability of food. Genetically modified plants and animals have the ability to solve this problem, in theory. This project aims to address the concerns over the safety of genetically modified food, while also demonstrating the potential GM foods have to provide adequate nutrition to the entire planet.

BIOLOGY

237 Auditorium 9:00-11:00 Board 17A
Isaac Appiah
Daron Barnard (Faculty Sponsor)
Department of Biology, Worcester State University
Annotation of the 2nd 3L Control Region of the chromosome of Drosophila Erecta.

The purpose of this research was to annotate the 2nd 3L control region of the chromosome of Drosophila erecta. The functions of genes in this fosmid were then determined based on the location found in relation to the location of similar genes in D. melanogaster. Various gene prediction programs like Twinscan, Genescan, Clustal and Gene Record Finder were used to establish the possible locations of the genes and to improve on the accuracy of the gene locations; Gene alignment programs as BLAST were used to gather further supporting evidence for the function and presence for specific genes in D. erecta which are also present in Drosophila melanogaster, which is the most annotated of the Drosophila species based on homology. It was found that the chromosomes resembled each other in most of the criteria used and only differed in the type of repetitive sequence, gene order and orientation. In conclusion, D. erecta had similar genes within the similar location as that of D. melanogaster suggesting functions given to the genes in D. melanogaster can be assigned to the genes in D. erecta with that aligned due to homology.

238 Auditorium 3:30-4:15 Board 23A
Isaac Appiah
Daron Barnard (Faculty Sponsor)
Department of Biology, Worcester State University
Oocyte Maturation: The Effects of Bisphenol A (BPA) Has On The Process

Oocyte maturation is the process of meiotic divisions that occur in the egg cell and can be grouped into two main components, namely nuclear and cytoplasmic maturations. The maturation period in oocyte is required to achieve a viable egg for the process of fertilization. Bisphenol A (BPA) is a colorless solid organic compound that is soluble in organic solvents but less soluble in water. It is known to be used in the production of epoxy resins, dental sealants, polycarbonate plastics and lacquers for food cans and water pipes. It is shown to have estrogenic properties and its effects are very detrimental to the mammalian reproductive abilities. The aim of this research is to determine and identify the effects of BPA on the oocyte maturation process as well as identify genes affected by BPA before the process of oocyte maturation in Xenopus begins and the pathway through which BPA works.

239 Concourse 9:00-11:00 Board 58C
Rosemary Boshar
Elsbeth Walker (Faculty Sponsor)
Department of Biology, UMass Amherst
Localization of key proteins involved in paclitaxel accumulation

Paclitaxel is an extremely valuable chemotherapy medication whose natural source is the inner bark of several Taxus species. Cancer is one of the most life-threatening diseases that our society faces, and relying on natural sources alone is not nearly sufficient to meet the high demands for medication, nor is it a viable option for the Taxus species. Therefore, research needs to be done to elucidate the unknown mechanisms of the paclitaxel biosynthetic pathway and its regulation in cell culture to increase the supply of this important therapeutic. An important part of understanding
this pathway involves discerning the specific location of key pathway proteins within the cell. In this study, a key transcription factor shown to increase expression of pathway genes and paclitaxel production, TcJAMYC, and the rate-limiting enzyme that directly controls output of paclitaxel, DBTNBT, were localized within the cell. It has been thought that TcJAMYC is located in the nucleus, and we predict that DBTNBT is located in the cytoplasm of the cell. Vector construction to create individual translational fusions of TcJAMYC and DBTNBT with reporter genes (GFP or mCherry) were created and put into wild-type Arabidopsis thaliana cells using a protoplast method. Confocal microscopy was then used to view the location of the fusion constructs within the protoplasts. The results of this study confirm that TcJAMYC is located in the nucleus and that DBTNBT is located in the cytoplasm. This provides further insight into the paclitaxel biosynthetic pathway, which is necessary for continued manipulation of the system to ultimately increase paclitaxel accumulation.

240 Auditorium 1:30-2:15 Board 13A
Keven Brown
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University
The Effect of Aquatic Organisms' Diet as the Input to Aquaponics Systems

Aquaponics is a fast-growing method of cultivating both aquatic creatures and terrestrial plants simultaneously by the implementation of a water-cycling system between separate tanks containing the two. Waste created by aquatic animals in their tank is broken down by bacteria into usable nutrients and this nutrient-rich water is continuously pumped to the roots of a bed of plants growing in soil-less media, where the water is purified as the growing plants take up these nutrients, providing a clean living environment for the aquatic creatures. The only input to this system is the food for the aquatic organisms. The easy-to-grow Ocimum basilicum, or basil plant, was grown in separate aquaponic setups in soil-less media beds of gravel. Additionally, two samples of the marbled crayfish (P. f. f. virginalis) were fed varied diets of protein-rich food and nitrogen-rich food. It was expected that the variations in inputs to this system would result in variations to crayfish size, plant growth, and bacterial/algal buildup. Protein-rich diets were expected to result in larger crayfish sizes and buildups of bacteria, while Nitrogen-rich diets resulted in larger plant sizes and algal buildups. As a control, samples of basil and crayfish were independently grown.

241 Auditorium 11:35-12:20 Board 27A
Jessica Comstock
Diane Generreux (Faculty Sponsor)
Department of Biology, Westfield State University
Effect of Hamamelitannin on Quorum Sensing in S. aureus

Staphylococcus aureus is a Gram-positive species of bacteria responsible for many health concerns such as skin infections, toxic shock syndrome, endocarditis, and biofilm formation on implanted medical devices. While some strains of this species are treatable with antibiotics, many are becoming resistant to the available antibiotics. Toxin production and pathogenesis in S. aureus are reliant on a quorum sensing mechanism that permits detection of and response to high population densities. Bacteria will not produce hemolysin, a toxin that lyses red blood cells, without the ability to detect these high densities. Disruption of the quorum sensing mechanism is therefore being investigated as a potential solution to reducing the toxicity of bacterial species. I will report on my attempts to disrupt the quorum sensing mechanism responsible for toxin production by S. aureus, thus rendering the bacteria less toxic to humans. My efforts focused on the use of hamamelitannin, a derivative of witch hazel, to inhibit quorum sensing in S. aureus. Hamamelitannin has the potential to reduce the effects of S. aureus infections without the advent of novel drug therapies or the use of antibiotics.

242 Auditorium 3:30-4:15 Board 24A
Sara Dansereau
Buzz Hoagland (Faculty Sponsor)
Department of Biology, Westfield State University
Cyclomorphosis and Behavioral Responses in Zooplankton due to Chemical Cues from Predators

Daphnia magna are zooplankton that play a very important role in fresh water environments, and are a major food source for Chaoborus spp. D. magna has developed many adaptations that favor survival in an environment inhabited
by predators. For example, when kairomones (chemicals emitted by predators) are released into the water, D. magna respond by undergoing cyclomorphosis (periodical changes in morphology associated in environmental change). In D. magna these changes include an increase of growth in their spines and protective shields. I will report on my efforts to quantify the concentration of kairomones required to yield the strongest response in D. magna. I report on my efforts to quantify the concentration of kairomones required to yield the strongest response in D. magna. This work provides a better understanding of developmental adaptations in D. magna, and offers insights of their capacity to respond to variations in the strength of predation.

243 Auditorium 3:30-4:15 Board 22A
Robert DelGizzi
Diane Genereux (Faculty Sponsor)
Department of Biology, Westfield State University

Relationship Between Nucleus Size and Genome Size Among Plants

Comparative genomics is still a relatively young field of study, however, the results of such study can yield new information about evolution. The purpose of this study is to ask whether there is a quantitative correlation between nucleus size and genome size among plants on the Westfield State University campus. Several different species of plants were used in in order to make these comparisons. Digital microscopy and an open-source program, ImageJ, were used to determine nucleus size for a set of species. The results will allow me to ask about possible correlations between genome size, and morphological and ecological features of plants.

244 Auditorium 1:30-2:15 Board 17A
Matthew Delrosario
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University

Living with Bacteria

College dorm living areas are notorious for harboring infectious agents including bacteria that have the potential to cause disease. Of particular concern to student health are the abundance and transmission of three infectious agents: MRSA, E coli, and streptococcus. I will report on the presence and distribution of disease causing bacteria sampled from: public shower room floors, sink handles, television remote controls, mini-fridges, and bathroom door handles. My findings will help stress the importance of hygiene to students living together.

245 Auditorium 1:30-2:15 Board 14A
Kylee Dunham
Steve Dinkelacker (Faculty Sponsor)
Department of Biology, Framingham State University

A stage-based population model for American Alligators (Alligator mississippiensis) in northern latitudes

Very little is known about the population dynamics of American Alligators in northern latitudes. Published life history and vital rate data were combined into northern (North Carolina and South Carolina data) and southern (Florida and Louisiana data) population regions. A Leslie matrix model was constructed for each region. The two general models showed that the southern population was thriving (λ > 1) and northern populations were in decline (λ < 1). Potential impacts of global climate change were integrated into the northern population model to determine how the population might respond to changes in temperature and precipitation. An increase in temperature would benefit the northern population; however a decrease in precipitation or the combined effects of temperature increase and precipitation decrease would negatively affect the viability of the northern population. Two priorities result from modeling these scenarios: (1) a long term monitoring program is needed to acquire the life history and vital rate data on the northern population, and (2) current alligator habitat must be conserved to insulate the species from the negative impacts of climate change.

246 Auditorium 11:35-12:20 Board 20A
Bradley Dunstan
Howard Thomas (Faculty Sponsor)
Department of Biology, Fitchburg State University

Parasitic Arthropods on Bats of Colima
Most parasitic arthropods spend only a portion of their life cycle on a single host. Whereas, some such as lice (Insecta, Anoplura and Mallophaga) spend most of their life on a particular host others such as chiggers (Acari, Trombiculidae) and fleas (Insecta, Siphonaptera) are found on a vertebrate host for a much shorter time. Arthropods of non-volant (flying) mammal hosts have the ability to leave one host and either infest another or re-infest the same host. Such mobility, within the life-cycle allows the arthropod the ability to complete non-parasitic portions of its life cycle, population dispersal, and infest new hosts. The biology of the parasitic arthropods on the outside surface of bats is unique as well as poorly understood. The volant nature of bats introduces barriers to successful exploitation by a parasitic arthropod. Paramount among these barriers is decreased likelihood of the arthropod reaching the ground to detach from the host to complete life cycles, disperse or infestation of new hosts. Bat arthropod parasites, have therefore, evolved unique life cycles and hold-fast structures. As a reflection of these adaptations there is a high degree of host and host-site specificity by some arthropod parasites and bat hosts (ter Hofstede et al. 2004). There are two families of flies (Order Diptera) and a single family of mite (Order Acari) that are adapted to parasitism on bats. They are Streblidae and Nycteribiidae for the former and Spinturnicidae for the latter. The Mexican state of Colima contains a bat diverse bat fauna (53 species, 27 genera, and 7 families). Despite this diversity of bat hosts little is known regarding the arthropod parasites found on them. The arthropod parasites of many of the Colima bats have been reported elsewhere: Venezuela (Guerrero 1993, 1994a, 1994b, 1995, 1998), Trinidad, BWI (Jobling 1949), Brazil (Linhares and Komeno 2000), Panama (Overal 1980, Wenzel 1976, Wenzel and Tipton 1966, and Wenzel et al. 1966). This abstract presents a listing of the parasitic arthropods found on a total of eighty-one bats of the following taxa: Artibeus intermedius (n=9), A. jamaicensis (n=8), A. phaeotis (n=3), A. toltecus (n=7), Balantiopteryx plicata (n=2), Desmodus rotundus (n=7), Glossophaga sp. (n=23), Micronycteris megalotis (n=5), Mormoops sp. (n=1), Pteronotus davii (n=1), P. personatus (n=1), and Sturnira sp (n=12). These bats were collected at thirteen locations in Colima. Bats were euthanized, prepared as museum voucher specimens and deposited at the University of Oklahoma. Parasitic arthropods were collected using a combination of brushing and visual removal from the host using a dissecting microscope. Collected arthropods were stored in a 70% isopropyl alcohol solution and later cleared in a 1-2% potassium hydroxide solution and then placed on microscope slides using Euparol mounting medium. Arthropods were identified to the most taxonomically exclusive category possible. Identification of parasitic flies of the families Nycteribiidae and Streblidae were provided by Dr. Carl W. Dick of Western Kentucky University. All records reported in this study represent new locality records since no previous work has been done on bat parasitic arthropods from Colima. The student will look at the arthropods that have been collected and mounted and attempt to identify them.

247 Auditorium 11:35-12:20 Board 21A
Bradley Ellis
Buzz Hoagland (Faculty Sponsor)
Department of Biology, Westfield State University
Effect of Founder Effect on Genetic Variation in Secluded Small Asian Mongoose Populations

Insular populations have provided geneticists with natural laboratories to study evolutionary processes for many years. Island populations are typically derived from a small numbers of colonists from a continental source population. A potential consequence of initiating a population of individuals is a loss of genetic variation the subsequent disruption of co-adapted gene complexes that control developmental processes. Introduced insular populations of small Indian mongoose (Herpestes javanicus) provide a good test of these models because the history of introductions is well known and greater than 100 generations have passed since the original introductions. This study reports the level skull asymmetry in each of five island populations of mongoose relative to founder size and number of founder events.

248 Auditorium 9:00-11:00 Board 18A
Rita Fagan
Rolf Karlstrom (Faculty Sponsor)
Department of Biology, UMass Amherst
Hedgehog Regulates Proliferation in the Zebrafish Hypothalamus

Rita R. Fagan, A. Tuba Ozacar, Rolf O. Karlstrom Identification of neural stem cells in the adult nervous system was an important breakthrough that may lead to new treatments for neurodegenerative diseases such as Alzheimer’s and Parkinson’s disease. The Hedgehog (Hh) cell-cell signaling pathway is known to regulate cell proliferation and neurogenesis in the dorsal adult brain, however a role in the ventral forebrain has not been identified. The larval zebrafish brain undergoes immense growth during larval development and continues to grow throughout life, making
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it an excellent model for the study of neural stem cells. Using a Hh antagonist to conditionally block Hh signaling at any time during larval growth, we have now shown a role for Hh signaling in cell proliferation in the ventral hypothalamus. Larvae were bathed in Bromodeoxyuridine (BrdU) to label proliferating cells, fixed, cryosectioned, and fluorescently labeled for proliferating cells in combination with additional proliferation and neural stem cell markers. We found a significant decrease \[ m=69.80 \text{ (control)} \text{ to } m=14.83 \text{ (treatment), } p<0.001 \] in the number of proliferating cells when Hh signaling was blocked using 80µM cyclopamine antagonist for 50 hours, and \[ m=92.2 \text{ (control)} \text{ to } m=26.7 \text{ treatment, } p<0.02 \] when treated with 100µM cyclopamine for 24 hours. We conclude that Hh positively regulates proliferation in the zebrafish hypothalamus. Additionally, we have now identified both Hh responsive and Hh producing cells as radial glial that contact the hypothalamic ventricle, suggesting local Hh signaling may regulate proliferation in this neural stem cell population. Hh may thus be a key regulator of brain growth throughout the life of the organism, and might also be involved in the known regenerative capacity of the zebrafish brain.

249 Auditorium 2:30-3:15 Board 4A
Quynh-Anh Fucci
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Human perspectives about the stem cell research.

Stem cells are cells that can divide and differentiate into a diverse range of specialized cells. The therapeutic application of stem cells has potential to cure some of the world’s most problematic diseases. Stem cells can be obtained from unborn fetal tissue, a process that destroys the fetus. Because of the connection with fetal destruction, research into stem cells science is surrounded by controversy and support for stem cell research is often blocked. This project proposes the hypothesis that most people are unaware of the benefits and sources of stem cells, and that if people were better informed about stem cell science, they will be less opposed to stem cell research. To support the hypothesis, the study asks the questions, “Are people aware of the potential benefits for patients with diseases such as Parkinson, Alzheimer, heart disease, and cancer?” - and - “Are people aware that there are non-fetal sources of stem cells?” To answer these questions, Bunker Hill Community College students were surveyed to assets their knowledge of stem cells and their opinion about stem cell research. Results showed that students had very little knowledge about stem cells, but they wanted to learn more about the topic. Most responders changed their views about stem cell research after they read an informational article that explained the benefits and sources of stem cells. The results were matched with other surveys and polls conducted in Michigan. In conclusion, the study suggests that we need more education about stem cell research and this could help overcome some obstacles faced by stem cell researchers.

250 Auditorium 3:30-4:15 Board 30A
Michael Gosselin
Steve Dinkelacker (Faculty Sponsor)
Department of Biology, Framingham State University
Reptile and Amphibian Diversity of Nags Head Woods Ecological Preserve, Kill Devil Hills, North Carolina

Maritime forests are especially subject to environmental changes due to their location on barrier islands. Current species lists, estimates of diversity, and species evenness are essential for monitoring communities within that ecosystem. We surveyed the reptile and amphibian community in a maritime forest in North Carolina in the summer of 2012. A total of 25 reptile and 15 amphibian species were documented. The Shannon-Wiener diversity index for the reptile species in the preserve was 2.03. Several species previously documented were absent, however new species were documented. Missing species could have been extirpated from the preserve due to factors such as increased human presence and severe storm events. Previously undocumented species could be the result of increased sampling effort, as well as increased surveying area. Although the species list is very similar to that of a previous study and the species diversity index is similar to that of other locations, the majority of species documented were rare. Continued monitoring of species diversity within the preserve should be conducted to determine if the community is losing diversity or undergoing a shift.

251 Auditorium 2:30-3:15 Board 2A
Nicholas Gulbrandsen
Thomas Schoenfeld (Faculty Sponsor)
Department of Biology, Fitchburg State University
The Chemistry of Olfaction
The airflow rate through the nostrils during inspiration is unequal due to nasal turbinate swelling greater in one nasal cavity than the other. Despite the asymmetry, the detection of odorants with each nostril is equal. There is evidence with odorants of high water solubility (sorptiveness), that this occurs because sniff duration is increased when sniffing through the lower flow rate nostril. However, it is unclear whether this trend applies generally to odorants varying more broadly in solubility. To investigate this further, we presented subjects with odorant detection tests, consisting of odorants broadly different in terms of water solubility, while sniffing parameters (airflow rate and duration) were monitored via spirometry. Detection with each nostril was recorded and keyed to the native birhinal asymmetry in airflow. This will test the hypothesis that odorant detection is optimized when variation in sorptiveness, and hence inspiratory transit, is matched with compensatory changes in sniffing.

252 Auditorium 1:30-2:15 Board 15A
Lauren Hickey
Mark Silby (Faculty Sponsor)
Department of Biology, UMass Dartmouth
An Evolutionary Analysis of Phage-Host Dynamics

This study examines the genetic changes that occur during the experimental evolution of a novel soil-isolated bacteriophage (virus of bacteria) and its Pseudomonas aeruginosa host, leading to varying levels of phage infectivity and host resistance. In recent years, antibiotic resistance in pathogenic bacteria has become a critical problem in medicine. Consequently, there is renewed interest in the idea of bacteriophage therapy – the use of viruses to kill pathogenic bacteria – a concept which fell out of favor in the west as antibiotics became available. To gain a better understanding of long term phage-host dynamics, two evolution experiments are performed over periods of thirty days each. In one case the phage is co-evolved with the host, while in the other it is evolved against the unchanging ancestral host. Cross-streaking experiments are used to determine infectivity and resistance rates, and genome re-sequencing of resistant, susceptible, and ancestral strains is used to correlate genetic changes in P. aeruginosa with observed changes in resistance to the phage. Bacterial populations were observed to develop increasing resistance to the ancestral bacteriophage over the period of coevolution (30 days), but tended to remain susceptible to concomitant and successive generations of phage. The exception to this was the bacterial population at time point T2, which showed broad resistance to all generations of phage, suggesting a significant change in factors the phage must recognize for infection. Interestingly, this state was not stable. Isolates from later in the evolution experiment did not show the same broad resistance. These experiments are revealing fundamental aspects of the relationship between P. aeruginosa and a virus which attacks it, and will provide insight into the prospects of bacteriophage therapy being successfully used without suffering the same resistance fate that has befallen antibiotic therapy.

253 Auditorium 3:30-4:15 Board 26A
Steven Johnson
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Nightmares, Fear and the Horrors of the Mind

Nightmares play a constant role in strange and mystifying content of dreams, but their significance and purpose are largely unknown. Applying current scientific research and scholarly journals, this research discusses the difference between dreams and nightmares and the theory that nightmares are defined as subjective experiences related to our interpretation and emotional reaction to our dream content. The project considers two classifications of nightmares (pre-traumatic and post-traumatic) and discusses their similarities, differences and compares /contrasts the content of each. Finally, the paper will provide details of upcoming research on IRT (Image Replacement Therapy) and whether or not this treatment can aid those suffering from PTSD in finding relief from chronic nightmares.

254 Concourse 9:00-11:00 Board 56C
Katelyn Kalutkiewicz
Wei-Lih Lee (Faculty Sponsor)
Department of Biology, UMass Amherst
Attenuation of Dynein-Mediated Spindle Elongation Ensures Proper Force Generation During Anaphase

The segregation of sister chromatids during anaphase ensures that each resulting daughter cell possesses one set of
chromosomes. This process is mediated by the mitotic spindle, which consists of microtubules, microtubule-associated proteins (MAPs), and molecular motors. It is currently unclear how these motors and MAPs generate an appropriate output of force to separate the spindle poles and thus achieve accurate chromosome segregation. Here, we use live-cell imaging to show that budding yeast deficient for She1 (she1Δ), a well-characterized inhibitor of dynein pathway function, exhibit significantly faster pole separation than wild-type cells. Combining she1Δ with mutations in either of the two kinesin-5 motors (kip1Δ or cin8Δ) did not restore the rate of pole separation to wild-type levels, suggesting that neither of these motors is responsible for the fast anaphase phenotype. Consistent with this hypothesis, we find that recombinant She1 has no effect on the in vitro motility of Cin8-3GFP. However, we found that she1Δ cells that were also deleted for the dynein heavy chain (she1Δ dyn1Δ) exhibited anaphase kinetics that were in fact restored to wild-type levels, suggesting that dynein is responsible for the fast anaphase phenotype. We also find that loss of dynein alone (dyn1Δ) has no effect on anaphase kinetics, indicating that dynein may normally be prohibited from participating in this process in wild-type cells. To determine whether hyperactivity of dynein can account for this phenotype independent of She1 dysfunction, we enhanced dynein function by overexpressing Pac1/LIS1, which increases the frequency and the level of dynein at the cell cortex. We found that overexpressing Pac1 in wild-type cells phenocopied the fast pole separation observed in she1Δ cells. Previous studies suggest that she1Δ cells exhibit a chromosome segregation defect, which may be a consequence of the rapid spindle elongation observed here. Thus, our data suggest that cortical dynein can contribute to anaphase forces, but its activity is prevented by regulated cortical targeting and She1-mediated inhibition to effectively attain an appropriate rate of spindle elongation. (*These authors contributed equally to this work)

255 Auditorium 3:30-4:15 Board 27A
Thalita Kimura
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
The Impacts of Technology in Biotechnology According with Scientists and Lab Workers

Technology has radically changed over the past years. New phones, new cars, new software are constantly updated with something different, something better. In this research, I focused on the perceptions that workers in the sciences have about changing technology in their field. To conduct the research I interviewed scientists and lab technicians that work in the biotechnology field. The results showed that most workers had a positive view of technology because it has improved accuracy of measurements, speed of preparation, and access to new data. Some downsides cited were, the need to learn new updates, and problems when the technology is too complicated to be repaired. All in all, this study suggests that technology is of great benefit to biotechnology labs and their continued progress.

256 Concourse 9:00-11:00 Board 50C
Beruk Kiros
David Roth (Faculty Sponsor)
Department of Biology, UMass Amherst
Cardiac-specific overexpression of caveolin-3 protects from diabetic cardiomyopathy

Diabetes is a chronic metabolic disease, due to elevated blood sugar levels. It is an epidemic currently affecting 366 million people. Diabetic cardiomyopathy is evident as ventricular dysfunction without coronary artery disease or hypertension. Caveolae are invaginations of the plasma membrane, where caveolins act as scaffolding molecules for localization of receptors and signaling molecules. Overexpression of cardiac caveolin protects the heart from ischemia-reperfusion injury and pressure-overload hypertrophy. We hypothesize that cardiac-specific caveolin-3 (Cav-3) overexpression (OE) will protect the diabetic heart. Since diabetes is more prevalent in middle aged adults, 10 month old transgene negative (TGneg) or Cav-3 OE mice were given a single dose of streptozotocin and then placed on a high fat (60%) diet to induce Type II diabetes mellitus (T2DM). The mice were anesthetized with isoflurane and cardiac structure and function (systolic and diastolic) were assessed using a Visualsonics echocardiograph. Cav-3 OE T2DM mice had significantly blunted left ventricular hypertrophy when compared to TGneg T2DM controls. Left ventricular mass of Cav-3 OE T2DM mice was preserved (P = 0.008). Their ejection fraction (%EF) (p< 0.0001) and fractional shortening (%FS) (p< 0.0001) was also maintained compared to T2DM mice. Thus, Cav-3 might be a novel target to reduce cardiac complications in diabetic patients.
Presenters • Poster Sessions

257 Auditorium 11:35-12:20 Board 23A
Dmitriy Kryukov
Adán Colón-Carmona (Faculty Sponsor)
Department of Biology, UMass Boston
The Range of Specificity of Highly Specific Phenanthrene Biosensors.

Biosensors present a promising method for collection of data regarding various pollutants in an environment. For a biosensor to be an effective tool, it must have specificity in reporting its marker towards a desired pollutant, while showing no response when presented a variety of other possible treatments. A set of four biosensor gene pairs was identified in Arabidopsis thaliana using the top-scoring pair (TSP) algorithm. The algorithm is used to analyze microarray data sets and identify the pair of genes, whose relative expression reversal would indicate the presence of the desired molecule. In previous experiments these biosensors exhibited a response to phenanthrene while not responding to other treatments such as NaCl, CdCl₂, and others. To further test the specificity of the phenanthrene biosensor, we hypothesized that the biomarkers would discriminate between polycyclic hydrocarbons highly similar chemical structure, such as 1- and 9- and 4-methylphenanthrene or 1,4-dimethylphenanthrene. The expression of the biosensor genes would be measured using qRT-PCR. Analyzing these results will give insight to the highly selective nature of biosensors, as well provide an idea for a possible mechanism of the biosensor process.

258 Auditorium 1:30-2:15 Board 18A
Mark Largey
Erin Rehrig (Faculty Sponsor)
Department of Biology, Fitchburg State University
The Use of DNA Barcoding in Conducting a Plant Survey

This thesis is an experimental attempt at using DNA barcoding to supplement a traditional plant survey for the purpose of identifying the native, invasive, and endangered plants in the Fern Glen conservation area in Winchendon, MA. As an emerging molecular technique used to identify organisms and to assess biodiversity, DNA barcoding involves taking a sample of an organism’s DNA and amplifying orthologous genes with specific primers. This is more accurate than simply identifying a species using a taxonomic key, because two species can look almost identical but can be different at a genetic level. The samples for this project were first identified to best ability of the identifier with taxonomic guides, and then a leaf-tissue sample was harvested for DNA isolation in the laboratory. The two genes of interest are rbcL and matK, both of which are located in the chloroplast genome. The gene sequences from the DNA sample were then cloned using PCR machines along with specific primers. When the genes were sequenced by a service laboratory, they were analyzed using bioinformatics to compare the sequence with a library of species already listed. The genetic identification was then compared with the visual identification, and any conclusions determining if DNA barcoding is an appropriate addition to a plant survey were made.

259 Auditorium 11:35-12:20 Board 22A
Denise Levy
Alexey Veraksa (Faculty Sponsor)
Department of Biology, UMass Boston
Structure Function Analysis of Drosophila Beta-Arrestin Kurtz

Defects in cell communication mechanisms cause developmental abnormalities and human diseases. Comprehending the means that cells use to route intracellular signals brings us closer to developing relevant therapies. This project involves examining the biological effects of introducing various mutations in Kurtz (Krz), a Drosophila beta-arrestin. This model is used to explore how a single β-arrestin is implicated in the regulation of multiple signaling networks. The DNA constructs carrying different mutations in a tagged version of Krz are used to generate transgenic Drosophila flies, and then tested for their effects on fly development. In addition, these transgenic lines will be used for isolating Krz-containing protein complexes, with the goal of characterizing the effects of the mutations on the protein interaction networks of the wild-type and mutant Krz. All rescued transgenic lines were validated by sequencing. The genetic results showed that FA, RE and ΔLIQLD transgenic mutants fully rescued krz1 to adult hood and displayed no apparent phenotype. However, KRK/Q transgenic mutant line had low fertility. Zygotic and maternal defects are implicated in low fertility observed in KRK/Q rescue lines. This will be quantitatively documented by counting the number of eggs produced. Also, analysis of mutants during oogenesis is needed for understanding this effect.
260 Auditorium 9:00-11:00 Board 37A
Tibor Mascari
Rolf Karlstrom (Faculty Sponsor)
Department of Biology, UMass Amherst
Thyrotrope development is affected by malnutrition and hypoxia in zebrafish

Significant increases in the incidence of congenital hypothyroidism (CH) over the last 2 decades have become a concern in the pediatric endocrinology community with the cause unknown. Although there is no consensus regarding an explanation for this growing issue, defective regulation within the hypothalamic-pituitary-thyroid (HPT) axis is suspected as an important contributor. CH is more common in infants associated with complicated births, as seen in cases of prematurity and low birth weight. The zebrafish embryo is particularly well suited for the study of HPT axis development, allowing research into hormonally regulated processes such as stress without the interference of a blood-placental barrier. Further, we have created a new transgenic zebrafish line [Tg(tshß:EGFP)] that allows visualization and quantification of pituitary thyrotropes in live embryos and larvae. Thyrotrope cells first emerge at 32 hours post fertilization (hpf) in the pituitary gland and increase until the 72 -120 hpf stage. My project is to determine whether and how early malnutrition and/or hypoxia affect thyrotrope cell addition and development. To examine effects of malnutrition, we will compare thryotrop number in fed larvae to those who receive no food through 8 days of larval development. Hypoxic conditions will be achieved using a hypoxic chamber, which depletes dissolved oxygen content in a controlled environment. Our preliminary experiments indicate that malnutrition leads to increased numbers of pituitary thyrotropes. Hypoxia results in a general delay of embryonic development and stagnation of pituitary endocrine cell development that is quickly restored once normoxia is reinstituted. These studies promise to provide insights into the cellular mechanisms by which exposure to metabolic stressors can affect the ontogeny of central thyroid regulation. These information may help guide clinical management of complicated pregnancies and sick neonates.

261 Concourse 9:00-11:00 Board 53C
Jesse Moskowitz
Rolf Karlstrom (Faculty Sponsor)
Department of Biology, UMass Amherst
Regulation of Cell Proliferation in the Zebrafish Pituitary

The pituitary gland regulates vital functions such as growth, metabolism, reproduction and the stress response. The Hedgehog (Hh) signaling pathway is essential for the induction and patterning of the pituitary gland in the embryo. Prior work in the Karlstrom lab indicates that Hh signaling also plays a role in regulating cell proliferation and endocrine cell addition in the post-embryonic zebrafish pituitary gland. Intriguingly, Hh signaling seems to switch from being a positive regulator of endocrine cell addition in the embryo and early larvae, to a negative regulator at later stages. The purpose of my research is to characterize the time at which this transition occurs and determine the identity of the cells that respond to Hh signaling in the pituitary. Using the drug cyclopamine to block Hh signaling at different times, and BrdU labeling to quantify proliferating cells, I have found that Hh is a positive regulator of cell proliferation at three days post fertilization (dpf) and six dpf. Preliminary data indicates that Hh is acting as a negative regulator of proliferation at 14 dpf. Characterizing the timing of this transition is a first step in investigating the mechanisms underlying this change. I am also using the Tg(hsp:gli2DR) line, which carries a truncated form of the Gli2 transcription factor that acts as a dominant repressor of the Hh signaling, to verify the specificity of these effects. This gene is under the control of a heat-shock inducible promoter, allowing activation (and thus Hh inhibition) by heating the embryo. Finally, I am identifying the Hh responsive cells in the pituitary by using a transgenic line that labels cells with the GFP protein. Since misregulation of Hh signaling has been implicated in Basal Cell Carcinoma, neural tumors, and pituitary adenomas, this work may help us better understand and hopefully treat these cancers.

262 Auditorium 11:35-12:20 Board 19A
Alexander Munding
Michael Nosek (Faculty Sponsor)
Department of Biology, Fitchburg State University
Studies of Mitochondrial DNA Heteroplasmy in HepG2 (Hepatocarcinoma) Cells
Kearns-Sayre Syndrome (KSS) is a rare neuromuscular disorder that usually has an early onset before the age of 20 years. The most common form of KSS is characterized by a 4,977 bp deletion within the mitochondrial DNA. In my work so far I have tried to induce this common deletion mutation within the Hepatocarcinoma cell line; more commonly known as HepG2 cells. I treated the cells with low concentrations of hydrogen peroxide to induce this mutation through oxidative damage. This was undertaken by splitting a confluent 25 cm3 flask of HepG2 cells into two 24 well plates. The cells were treated with concentrations of hydrogen peroxide from 0.3 % to 0.45% in 0.5% increments. One further step that has recently been undertaken is to force some of the cells to use their mitochondria through aerobic respiration using non-glucose media. The other half of treated cells are still contained in normal media. After treatment the half of the cells were taken for mtDNA extraction and PCR and the others were plated for further growth. The cells treated with the higher concentrations of hydrogen peroxide showed definite morphological changes and continuation of growth while other cells underwent apoptosis. The live cells were tested for the deletion mutation using polymerase chain reaction (PCR) but preliminary tests have not demonstrated the presence of the deletion mutation. Further repetitions of the experiment need to be undertaken to test if the KSS deletion can be induced by hydrogen peroxide. The goal of these experiments is to develop a reproducible method for inducing the mutation to further study factors that affect the amplification of the deletion mutation in these cells.

263 Auditorium 3:30-4:15 Board 29A
Vlad Nedelea
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Theory on the Evolutionary Development and Functions of REM Sleep/Dreams

For most of human history, dreaming has been much of an undiscovered realm. Lacking the adequate scientific tools to objectively analyze this phenomenon, humanity has relied heavily on explanations of mysticism in order to explain its purpose. Today, we see a change in this trend as new technology enables scholars/scientists to dig deeper into the territory of dreams. This paper relies on contemporary research as means of attempting an explanation at the evolutionary emergence and function of dreams. By analyzing different theories regarding REM sleep and dreaming in parallel, it can be deduced that this altered state of consciousness provides us with a variety of evolutionary advantages. We posit that certain evolved features correlate with dreaming to varying degrees. Thermoregulation, maintenance of brain plasticity, memory consolidation, creative problem solving, religion, society, and even the existence of a primitive virtual reality upon which our consciousness is built; all seem to be somewhat dependent on the dreaming brain.

264 Auditorium 1:30-2:15 Board 16A
Laura Nogue
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University
Algal Growth Rates

Climate change may be the result of increased levels of atmospheric carbon dioxide and the resulting increase in mean global temperature. Temperature change is impacting species throughout the ecosystem and has inspired efforts to reduce global carbon dioxide levels. Plants are a sink for carbon dioxide and can aid in its removal in the atmosphere. A culture of simple photosynthetic organisms like Scenedesmus obtusus can also be a sink for carbon dioxide. I will report on my work related to algal growth rates at various temperatures and nitrate concentrations, showing a correlation of growth and carbon sequestering on a cellular level.

265 Auditorium 9:00-11:00 Board 38A
Veronica Pace
Rolf Karlstrom (Faculty Sponsor)
Department of Biology, UMass Amherst
Engineering New Transgenic Zebrafish that Allow Spatial and Temporal Regulation of Shh Signaling

The cell-cell signaling molecule Sonic Hedgehog (Shh) plays an important role in embryonic development as well as in adult tissues. Over-activation of this pathway leads to many kinds of cancer, indicating the importance of understanding how Shh functions in the adult. The goal of my research is to create new transgenic zebrafish lines that allow us to up- and down- regulate Shh signaling in any tissue and at any time in the life cycle. We are using the well-established
Tetracycline inducible (TET-ON) system. The system requires two transgenic components, a “driver” that leads to the production of a drug-inducible transcription factor in specific tissues, and of a “reporter/effector” that alters Hh activity when activated. For our driver line we use a promoter for the gene patched2 to drive rtTA expression only in Hh responsive cells. We will use gli1 and gli2Dr genes as responders to up- or down-regulate Hh signaling when Doxycycline is added to the live fish. We have injected hundreds of zebrafish embryos with the appropriate DNA driver construct and are currently in the process of identifying stable transgenic fish that carry the driver gene, Tg(ptch2:rtTA-HA). I am focusing on verifying that our constructs work using in situ hybridization and immunohistochemistry. Once we confirm appropriate expression of the transgene in the driver line, the responder transgenes will be introduced into embryos carrying the driver transgene to complete the Tet-On system. When the Tet-On system is established, these lines will be used to study the effects of both hyper-activation and repression of Shh signaling in cells that normally respond to Hh throughout the life cycle.

266 Auditorium 3:30-4:15 Board 28A
Adam Parlin
Steve Dinkelacker (Faculty Sponsor)
Department of Biology, Framingham State University
Do Habitat Characteristics Prevent the Occupancy of Barrier Islands in Coastal North Carolina by American Alligators (Alligator mississippiensis)?

American Alligators (Alligator mississippiensis) range from eastern Texas to North Carolina. Habitats in the coastal region of North Carolina, such as barrier islands, may not be suitable for long-term occupancy by alligators. In barrier island habitats, freshwater ponds are dependent on precipitation and are therefore susceptible to drought. The goal of the study was to determine if habitat characteristics differ significantly between barrier islands and the adjacent mainland, and if alligator densities reflect those differences in habitat. We used standardized spotlight survey techniques to determine alligator density and assessed habitat characteristics using both aerial imagery and ground surveying. Analysis indicated that there was an overall difference between mainland and barrier island habitats; however, further analysis yielded no significant correlation between alligator density and habitat characteristics. Additionally, spotlight surveys revealed that alligators were sparse in their distribution between sites. There is the possibility that North Carolina may be suboptimal habitat, thus reflecting the low densities calculated.

267 Auditorium 9:00-11:00 Board 42A
Joseph Ducharme
Sara Pedersen
Jennifer Hanselman (Faculty Sponsor)
Department of Biology, Westfield State University
"Peas" Leave Me Alone: Influence of Seed Density on Growth of Pisum sativum

Previous research has identified the relationship between competition and growth in a variety of species. With plants, we can manipulate to identify relationships among resources and growth. A month-long study investigated the relationship between seed density and growth of Pisum sativum (pea plants). The hypothesis predicted a negative correlation between seed density and growth (e.g. average dry biomass, average number of leaves per plant, and average height). We expected that increased competition for space would limit growth. We randomly assigned five plants to one of three treatments: 2 seeds per cup, 4 seeds per cup, and 10 seeds per cup (N=15). We kept the plants in a controlled environment in the greenhouse at Westfield State University. Descriptive statistical analyses and correlations identified the relationship between seed density versus growth. Results showed a negative correlation between seed density and the average dry biomass and the number of leaves per plant. There was a positive correlation between seed density and average height, however. As seed density increased, the net biomass per plant and leaf count per plant decreased. However, as seed density increases, the average height increased. The hypothesis validated previous research that demonstrated the negative correlation between seed density and growth (M. Armin et al., 2007). With increasing seed density, plants exhibited difficulty growing downward because of the increased root biomass, all competing for water and nutrients. However, plants successfully grew upward as a way to increase acquisition of sunlight.
Many Americans are faced with chronic kidney disease that ultimately results in renal failure. Regenerative therapy could potentially restore renal function by utilizing either endogenous or transplanted kidney progenitor cells. The common zebrafish is an experimental and genetic model that greatly facilitates the study of kidney development. Remarkably, the embryonic zebrafish kidney becomes fully functional within 2 days of development. The goal of my project is to understand whether and how hormones affect the development of the kidney. We hypothesize that pituitary hormones help establish specific functional activities within the proximal region of the embryonic kidney by activating expression of key solute transporter genes. Using in situ hybridization (ISH) we recently discovered that the kidney-specific sodium phosphate co-transporter slc20a1a is not expressed in mutants with reduced pituitary function (you-too (yot)). To directly test whether the osmoregulatory pituitary hormone prolactin regulates the expression of slc20a1a, as well as other solute transporters, we are knocking-down prolactin function using morpholinos and assaying solute transporter expression by ISH and quantitative PCR. Understanding how prolactin and other pituitary hormones regulate specific kidney functions may contribute to the design of regenerative therapies to restore renal function in humans with kidney disease.

Diatoms and other algae are underrepresented in aquatic research, despite the valuable information they give regarding water quality. Examining algae differences from current and past times can detect alterations in habitat not only from human influences but also environmental events. Using algae provides a tool for conservation planning in the future as well as an idea of plausible changes that can occur in the aquatic environment. In more recent history, the field of paleoecology has produced records of change in algae flora due to past historical influences in numerous lakes. While the field is growing rapidly, there is still a great detriment of data regarding Northeastern lakes of the United States. The purpose of this research study is to examine past and present algae of Russell Pond and Littleville Lake in Western Massachusetts using core sample data. Algae were first examined for changes in structure, flora, and abundance, then quantified, and lastly utilized in a statistical test. Significant results are discussed as well as possible errors. Comparisons are made among the data collected, supplementary water quality data, and other paleoecological studies from environmentally similar regions of America. Implications for future research in this area are also proposed.

This project seeks a noninvasive diagnostic method to monitor return of spermatogenesis in male cancer patients following radiation treatment or chemotherapy. Current diagnostics involve semen sampling or testicular biopsy which help predict fertility in recovering male patients but are invasive and problematic in young or culturally or religiously conservative patients. Cytology of urine sediments from fertile males demonstrates sperm; sediments from recovering cancer patients should contain sperm if spermatogenesis is active. Although presence is not proof that such sperm are functional, observation of significant numbers of morphologically normal sperm is highly predictive of fertility. A cytological test enhanced with a specific fluorescence label should reliably demonstrate sperm production. Our approach to this noninvasive test derives from published reports that certain plant lectins, e.g., Arachis hypogaea lectin (PNA) and Pisum sativum lectin (PSL), preferentially bind to carbohydrates decorating sperm membrane proteins or gangliosides. PNA specifically binds to galactosyl-β (1-3)–N acetylgalactosamine while PL binds to a triantennary carbohydrate complex containing a mannose substituted at C-2 and C-6. Volunteer samples of sperm and female
epithelia from urine sediments were immobilized on poly-D-lysine coated coverslips, washed with pH 7 phosphate buffered saline (PBS), incubated with fluorescein labeled PNA (FPNA) at 10-40 ug/mL in PBS, washed again, mounted on slides using 50% ethylene glycol, sealed with nail polish and imaged with an epifluorescence microscope. Specificity of binding was verified by co-incubation of cells with 20 ug/mL FPNA plus 800 ug/mL PNA or 500 mM galactose. PNA specifically binds to the caudal half of the sperm head in a majority of sperm; epithelial cell FPNA staining was less intense. Continuing studies will characterize FPSL binding and adjust FPNA concentrations to optimize sperm-epithelial cell contrast.

271 Auditorium 3:30-4:15 Board 25A
Steven Rejniak
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University
Brook Trout distribution in the Manhan River below the Tighe Carmody Reservoir in Southampton, MA

Since 2005, investigations of a 3-mile segment of the Manhan River below the Tighe Carmody Reservoir in Southampton, MA have shown a reduction in downstream native trout populations. Data shows an increase in thermal pollution, sediment load and bank erosion. In 2009 the Pioneer Valley Energy Commission began a systematic drawdown of water from the Reservoir, which prior to this date there had been a normal flow pattern in the river. Today we find only minimal flow from the Reservoir, ground water sources, and small feeder streams contributing to the summer flow dynamics. Multiple data collections (temperature, dissolved oxygen, pH) took place during September and October of 2012. Also, observations of trout populations in the main stem and tributaries accompanied the data collection events. The reduction in flow during the critical growth season has led to a significant reduction in the population of the native brook trout (Salvelinus fontinalis). Other considerations such as reduction in spawning habitat, increase competition of existing populations, increase temperatures and decreased dissolved oxygen will most likely result in a complete destruction of the native populations of trout species in this portion of the Manhan River.

272 Concourse 9:00-11:00 Board 49C
Ankur Sheel
Lawrence Schwartz (Faculty Sponsor)
Department of Biology, UMass Amherst
Novel Lupus Antigen Related Protein Acheron Acts as a Survival Protein in Human Breast Cancer Cells.

Acheron is a member of the Lupus Antigen family of RNA binding proteins and was recently shown to elevated in basal-like breast cancers in women. MDA-MB-231 human breast cancer cells expressing ectopic Acheron have higher rates of proliferation, angiogenesis and expression of the metastasis-associated proteins MMP-9 and VEGF. The data suggests that Acheron may enhance human breast tumor growth. The goal of this study was to test the hypothesis that Acheron functions as a survival protein. MDA-MB-231 cells expressing ectopic Acheron were exposed to a variety of toxic insults including serum starvation, proteosome inhibition, DNA damage, free radical stress and heat shock. Cell viability and survival was determined via XTT assay. Ectopic Acheron expression protected the cells from serum starvation, proteosome inhibition and heat shock. These results suggest that Acheron enhances tumor growth, in part, by functioning as a survival factor.

273 Auditorium 2:30-3:15 Board 1A
Michelle Springer
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University
Atlantic Salmon Restoration Efforts in Connecticut River Watershed

Salmo Salar, also known as Atlantic Salmon, were first started to be collected in the Connecticut River watershed in 1974. An ongoing attempt since to the present has been to restore these populations in the watershed. The results have been less than desired. The effort is looking at the number of fry introduced then their return the same season. The percentage is less return than introduced. Possible explanations of these patterns of the presented data are climate change and introducing predators.
274 Concourse 9:00-11:00 Board 57C
Laura Stapler
Gerry Downes (Faculty Sponsor)
Department of Biology, UMass Amherst
Utilizing Zebrafish to Identify Small Molecules to Combat Maple Syrup Urine

Maple Syrup Urine Disease (MSUD) is a severely debilitating human metabolic disorder caused by a mutation in any one of four genes, each of which encodes a subunit of the Branched Chain α-Keto Acid Dehydrogenase Complex. This complex is essential for Branched-Chain Amino Acid (BCAA) metabolism. If MSUD is not treated, BCAAs (isoleucine, leucine, and valine) and their metabolites (α-keto acids) accumulate to toxic levels and wreak havoc on the central nervous system, and cause mental retardation, seizures, coma, cerebral swelling, and/or death. Currently, the only treatments available are an extremely restrictive diet, mostly lacking BCAAs, or liver transplantation. New therapies are much needed and could provide novel insight into nervous system metabolism. Zebrafish are an established model organism for human disease and drug development, and our laboratory has previously established a model of MSUD using the zebrafish quetschkommnode (que) mutant (Friedrich, Lambert, Masino & Downes, 2012). Que mutants, which contain a mutation in the E2 subunit of the BCKD complex, mirror the molecular, cellular, and behavioral aspects of MSUD. Therefore, the que zebrafish mutant could be an excellent tool for small molecule drug screens, in which thousands of potential therapeutics could be tested. As a first step towards small molecule drug screens we selected ten compounds that, based on our model, might exacerbate or ameliorate the que phenotype. We bath applied them at various concentrations, and performed a behavioral assay to measure the effects of swimming behavior. From this pilot assay, sodium phenylbutyrate emerged as a promising therapy. To follow up on these findings, I am currently attempting to use antisense technology to disrupt the expression of other genes that encode the BCKD complex then I will test the effects of sodium phenylbutyrate. The results of these findings will be presented to further establish the zebrafish model of MSUD and expand its ability to be used to discover new therapeutics to combat this disease.

275 Auditorium 9:00-11:00 Board 41A
Hannah Kelly
Kellie-Anne Suska
Buzz Hoagland (Faculty Sponsor)
Department of Biology, Westfield State University
The effects of Temperature on the Hatching of Painted Lady Butterflies

The Painted Lady butterfly (Vanessa cardui) is the most widespread and abundant species of butterfly, found on four continents (Asia, Africa, Europe, and North America). Unlike many butterflies, it does not become dormant during the winter and cannot survive heavy frosts or colder conditions; thus each year painted lady butterflies must undergo mass migrations to spend its winters in warmer climates. One-hundred painted lady caterpillars were incubated at differing temperatures over eight weeks to observe the effect of temperature on cocoon metamorphosis and hatching time. It was predicted that the group of individuals at the highest temperature would have the quickest hatching time and the group of individuals at the lowest temperature would have the slowest hatching time. Response to the temperature of the painted lady habitats influenced the metamorphosis and hatching time significantly. As predicted, butterflies at the highest temperature had the quickest hatching time. Individuals incubated at the lowest temperature had the slowest hatching times. The temperature of the painted lady habitat appears to play a key role in the rate of successful maturity from caterpillar to cocoon to winged adult.

276 Concourse 9:00-11:00 Board 54C
Jessica Sysopha
Samuel Hazen (Faculty Sponsor)
Department of Biology, UMass Amherst
Vernalization sensitivity in Sicilian Brachypodium distachyon

Brachypodium distachyon is a model species for the study of grasses including some potential bioenergy crops. Among other attributes, its short life cycle, small size, and minimal growth requirements make it an easy plant to cultivate for research purposes. It has been demonstrated that B. distachyon accessions have varying degrees of vernalization sensitivity, a measure of responsiveness to temperature whereby cold accelerates the time it takes for a plant to flower. The vernalization sensitivities of four B. distachyon accessions from Sicily were characterized relative to accessions
Insensitive and strongly sensitive to vernalization. Five imbibed seeds of each accession were cold treated for zero, two, four, or six weeks at 4°C and planted in a greenhouse. Vernalization sensitivity was determined as the number of days from planting to flower emergence. The four Sicilian accessions exhibited dramatically different vernalization sensitivity. The vernalization insensitive accessions Bd21 and Bd21-3 flowered earlier than all of the Sicilian accessions. Two were equivalent to vernalization sensitive control Bd1-1 and two were exceedingly more sensitive than Bd1-1. The two accessions collected from the same location behaved very differently, suggesting a high level of genetic diversity may exist within each population.

277 Concourse 9:00-11:00 Board 51C
Brandon Taylor
Anne Averill (Faculty Sponsor)
Department of Biology, UMass Amherst
The Effect of Forest Disturbance on Euglossine bee communities in Cusuco National Park

Euglossine bees, or orchid bees, occupy Central and South America. Many male orchid bees collect volatile chemicals, partly from orchids. This study analyzed the effect of forest disturbance on orchid bee communities. In particular, we had two hypotheses: (1) that orchid bee diversity (species richness and evenness) would decrease with intensity of disturbance and (2) that orchid bee species composition would differ in disturbed and pristine habitats. A number of sites in the northwestern part of Cusuco National Park were selected. Undisturbed sites were paired with disturbed sites on the basis of a number of habitat variables. At each site, orchid bees were sampled using a variety of volatile chemicals as attractants, and later identified. Variation in orchid bee species composition among sites is being examined using nonmetric multidimensional scaling (NMS). Nonparametric multiplicative regression (NPMR) is being utilized to further evaluate the usefulness of particular habitat variables (time since disturbance, canopy cover, etc.) in predicting orchid bee species diversity and species presence/absence. Indicator species analysis, or ISA, is being used evaluate the extent to which individual orchid bee species are associated with particular habitats. In addition, t-tests are being used to analyze the effect of forest disturbance on individual species.

278 Auditorium 11:35-12:20 Board 24A
Hilary Tryon
Robert Thompson (Faculty Sponsor)
Department of Biology, Westfield State University
Edge Effect on Nest Predation in Western Massachusetts

With today’s growing human population, habitats are being fragmented at an alarming rate, and with that fragmentation comes an increase in the amount of edge communities found along forests. It is well known that the creation of these edges has an impact on the organism that live there, although the extent on these impacts vary and are lesser known. With more ecosystem fragmentation, resulting in edge habitat creation, the probability of edge nesting birds will increase, and with this nest predator numbers will likely be correlated to bird populations. Many studies have been conducted to examine the edge effect on nest predation, but the results vary widely. This study investigated the edge effect on nest predation in Western Massachussets and the data collected was then compared to previous studies to see if the edge effect is having an impact on birds that nest there. Artificial nests containing quail eggs were set up in the edge and interior of the forest, with wildlife cameras set up nearby to allow us to view the predators. Using the data collected the rate of predation was calculated and predator distribution was compared. It is important to know the extent of the impact that the edge effect is having on the organisms that live in these habitats in order to create conservation plans.

279 Concourse 9:00-11:00 Board 52C
Ian Whitney
Samuel Hazen (Faculty Sponsor)
Department of Biology, UMass Amherst
Cell walls and the developmental anatomy of Brachypodium distachyon stem

While many aspects of plant cell wall polymer structure are known, their spatial and temporal distribution within the stem are not well understood. Here, we studied vascular system and fiber development, which has implication for both biofuel feedstock conversion efficiency and crop yield. The object of this study, Brachypodium distachyon, has emerged
as a grass model for food and energy crop research. Here, we conducted our investigation using B. distachyon by applying various histological approaches to the stem internode from three key developmental stages. While vascular bundle size and number did not change over time, the size of the interfascicular region increased dramatically as did cell wall thickness. We also describe internal stem internode anatomy and demonstrate that lignification continues after crystalline cellulose and xylan accumulation ceases. The vascular bundle anatomy of B. distachyon appears to be highly similar to domesticated grasses. While the arrangement of bundles within the stem is highly variable across grasses, B. distachyon appears to be a suitable model for the rind of large C4 grass crops. A better understanding of growth and various anatomical and cell wall construction features of B. distachyon will further our understanding of plant biomass accumulation processes.

CHEMICAL ENGINEERING

280 Auditorium 9:00-11:00 Board 22A
Kelsey Mantoni
Susan Roberts (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Spatiotemporal Rheological Properties of Cell-Seeded Alginate Hydrogels

The extracellular environment can have a deciding impact on cellular phenotypes such as protein synthesis, cellular metabolism, and even stem cell differentiation. Cells and tissues are often encapsulated in a synthetic extracellular matrix, such as a hydrogel, for tissue engineering and drug delivery applications. Quantifying the spatiotemporal mechanical properties of the extracellular matrix is vital for predicting and controlling the phenotype of the encapsulated cells. Our study focuses on characterization of the bulk rheological properties of cell-seeded alginate hydrogels. Alginate is a biocompatible, natural polymer derived from seaweed. The study uses PRONOVA Ultrapure MVG Alginate from Novamatrix because its well-characterized viscosity and G-content allow precisely replication of experimental designs. The alginate hydrogels, both cell-seeded and unseeded, were soaked in 10 mM calcium chloride and PBS for varying amounts of time to generate hydrogels with different stabilities. Bulk rheology was then performed and the elastic modulus of each gel was determined by relating the force applied to the surface of the gel to the amount of deformation induced. To test the mechanical properties of the hydrogels at the scale of a single cell/cluster and compare to bulk rheology, we will utilize cavitation and fracture microrheology in future experiments. Our findings suggest that bulk rheology is unable to capture the variation of mechanical properties within hydrogels, in part due to the secretion of extracellular matrix by encapsulated cells.

281 Auditorium 9:00-11:00 Board 21A
Dana Thornlow
Neil Forbes (Faculty Sponsor)
Department of Chemical Engineering, UMass Amherst
Extraction and Analysis of Highly Motile Salmonella typhimurium for Increased Penetration into Tumor Tissue

While conventional systemic therapies fail to reach poorly vascularized tumor regions, bacteria can actively penetrate deep into the hypoxic regions of tumors. In addition, previous research has shown that several genera of bacteria, such as Salmonella typhimurium, naturally accumulate in the necrotic regions of tumors in ratio's of 1000:1 compared to non-cancerous tissue, leading to tumor shrinkage and enhanced survival in animal models. Due to their specific tumor-targeting capacity, these bacteria reduce systemic toxicity, thereby eliminating a major setback of conventional therapy. Previous studies in the Forbes lab show that highly motile bacteria such as S. typhimurium will penetrate further into hypoxic regions of tumors than less motile E. coli. Based on this result, this study seeks to isolate a highly motile fraction of a S. typhimurium population to increase penetration in tumor tissue, which would lead to improved clinical efficacy. A systematic method for extraction and maintenance of this faster moving fraction was developed through the use of swarm plates, a semi-soft agar containing minimal nutrient media that allows bacteria to swarm outward from a central inoculation point. A significant velocity increase post extraction and a shift in the velocity distribution towards highly motile bacteria will allow for better penetration through tumor tissue in attenuated Salmonella. The population movement through tissue can be modeled in an in-vitro tumor device model previously developed in the Forbes laboratory.
Of all the brains present in both vertebrate and invertebrate animals, the human brain is one of the most complex and advanced. It is credited as being the hub of information acquisition and storage in the human body. But like the saying goes, with much power comes great responsibility; the brain is very hard to examine and too complex to allow for scientists to grasp a thorough understanding of how it performs such great tasks like storing color differences or examining the space differential in time. Due in large to technological advancements, we now know that the brain consists of mainly Neurons and Glial cells that handle most of the information processing. Neurons are the most important of the duo; they send and receive signals over a long range of target cells within the brain using elements like synapses, axons and dendrites. Neurochips on the other hand are a newly developed chip that can be placed into the brain to impersonate neurons and allow scientists to observe and monitor brain cell activity. This could allow scientists to develop cures for neurodegenerative disorders like Alzheimer's, Parkinson's or even help the learning process of kid's with dyslexia. With this research paper, I hope to broaden the understanding of the lesser known workings of the Neurochip and examine both the limitations and benefits of this very eminent technology.

Paclitaxel, originally derived from the yew tree, is a mitotic inhibitor used in cancer chemotherapy. Currently, paclitaxel is being produced and supplied at a large-scale using plant cell suspension culture technology, but processes are unoptimized for both yield and variability. One possible cause for the observed variability in paclitaxel yield is that plant cells tend to grow as aggregates sizes of varying sizes, creating metabolic subpopulations due to varying oxygen and nutrient diffusion profiles. The Roberts' lab has found that cultures with smaller aggregate sizes have increased paclitaxel accumulation levels. This project aims to investigate the effect of mechanical shearing to reduce aggregate size on growth, viability and aggregation of Taxus suspension cultures. Different methods including pipetting, vortexing, and sonication were evaluated. Recommendations regarding an optimal reproducible method to control aggregate size without affecting the growth or viability of the culture will be presented.

Pesticide loss from treated turf areas such as golf courses presents a significant threat to both public and environmental health. One technique that may be used to mitigate such transport is the implementation of vegetative filter strips (VFS). The aim of this study is to examine the effectiveness of different VFS treatments (plant succession, random arrangement of plants, turfgrass at three heights, unvegetated). Plants used in the study were selected for their ability to take up the pesticides of interest, as identified by a prior study (Smith, et al. 2008). Pesticides were applied as runon during a simulated 1 yr rain event; soil cores and water samples from below ground lysimeters were collected at discrete intervals post-application. All samples were chemically analyzed for pesticides of interest, and pesticide concentration was quantified by GC/MS and LC/MS/MS. Although analysis of the results has not yet been completed, the aim is to determine which treatment most effectively reduced pesticide concentration in the VFS soil and ground water. Preliminary results have shown that all vegetative treatments were more effective in decreasing runoff volume and pesticide concentration, and turfgrass was more effective than the two vegetated treatment.
Assembly of electron donator and acceptor organic polymers into a structure that creates a path to two electrodes is a major barrier for organic photovoltaics (OPVs). At UMass we are engineering an assembly of conjugated polymers by making nanoparticles of semiconductor organic polymers. Conjugated polymers are surrounded by surfactant and form nano-sized aqueous micelles during an ultra sonication-induced microemulsion. Effective nanoparticle assembly into OPVs requires consistently small-sized nanoparticles. My research studies how changes in the micro-emulsion environment affects nanoparticle size and dispersion of sizes. The environment was tuned by changing the surfactant, concentration, pH, temperature, sonication time, sonication power, and other components. Initial results showed only modest improvement of size consistency when tuned. This suggests that the desired solution of a small disparity of less than 20nm sized micelles would require multiple changes to the current procedure.

Effect of Surfactant on Structure of Nanoparticles for Organic Photovoltaics

Semiconducting nanoparticles of controllable structure are integral to developing high-efficiency organic photovoltaics (OPVs). By contrast, the conventional annealing method of fabricating OPVs is inflexible; very few systems fabricated this way result in a morphology with high cell efficiency. This project uses a novel nanoparticle self-assembly technique that fabricates OPVs with favorable morphology from a wider variety of semiconducting organic molecules. Using this method, nanoparticles with different structures can be obtained by varying the type and concentration of surfactant molecule used in fabrication. N-type semiconducting nanoparticles were fabricated from perylene diimide (PDI) and surfactant molecules using a miniemulsion procedure. The nanoparticles were then characterized using Dynamic Light Scattering, UV/Vis spectroscopy, and scanning electron microscopy (SEM). The result of varying the type and concentration of surfactant molecule used in the miniemulsion procedure was analyzed to determine the effect on nanoparticle structure.

The electroplating industry produces waste products that may contain trace metals such as cadmium, lead, and chromium. By using Graphite Furnace Atomic Absorption Spectroscopy, soil samples collected at three different depths along the Middle River located near an electroplating company in Worcester, Ma were analyzed for concentrations of cadmium that exceed Environmental Protection Agency standards. Samples were collected upstream and downstream from the electroplating company. Samples collected upstream from the outflow demonstrated a decrease in cadmium concentration (0.023ppm to 0.006ppm) with depth while samples collected downstream showed an increase in cadmium concentration (0.012ppm to 0.022pm) with depth. Future studies will analyze a wider array of samples along the area of suspected contamination for chromium and lead.

Water Exchange rates in Paramagnetic Metal Ion Complexes and Factor Inhibiting Hypoxia Inducible Factor

Nuclear Magnetic Resonance Spectroscopy can provide information about the exchange of water molecules from the
primary hydration sphere of paramagnetic ions, both free in solution and in larger complexes such as proteins. The transverse relaxation rate ($1/T_2$) of a water hydrogen atom is significantly faster when the water molecule is near a paramagnetic ion; therefore, faster exchange results in a greater average relaxation rate for the entire population of water hydrogen atoms. The Swift and Connick Equation allows for calculation of water exchange rates from measured transverse relaxation rates and chemical shift differences. The Carr-Purcell-Meiboom-Gill (CPMG) pulse sequence was used to develop an experiment feasible for an undergraduate inorganic chemistry lab in which students use $1/T_2$ measurements to determine water exchange rates for various transition metals. The same method was then used to determine the effects of substrate binding on water exchange on the Fe(II) cofactor of the human enzyme Factor Inhibiting Hypoxia Inducible Factor (FIH), which is essential to oxygen sensing and regulation in the body. The experiments were repeated in deuterated water so that the solvent isotope effect could be determined to provide further insight into FIH reaction kinetics.

289 Auditorium 9:00-11:00 Board 23A
Christina Lincoln
Julie Goddard (Faculty Sponsor)
Department of Chemistry, UMass Amherst
Effect of Polymer Composition on the Activity of Thin Films Containing Modified Glucose Oxidase

The purpose of this research is to evaluate the effect of material properties on the activity of modified glucose oxidase entrapped within hydrophobic thin films. Entrapment of enzymes in hydrophobic polymer films is desirable for the development of biocatalytic materials including biosensors and active packaging. However, enzymes are not soluble in hydrophobic solvents, thus limiting these applications. Glucose oxidase has been made soluble in hydrophobic media by employing surfactant attachment to modify the enzyme. Toluene-solubilized modified enzymes are then spin-coated to form thin films and analyzed for encapsulation efficiency and glucose oxidase activity. The effect of different polymers, including ethylene vinyl acetate, ethyl cellulose, and polystyrene, are evaluated to determine the impact of material properties on catalytic activity. We anticipate that the incorporation of the modified enzymes into thin films will result in the retention of enzymatic activity and provide a platform for oxygen-scavenging food packaging and enzyme-based biosensors.

290 Auditorium 2:30-3:15 Board 16A
Shingo Masugi
Wei Zhang (Faculty Sponsor)
Department of Chemistry, UMass Boston
Fluorous Diastereomeric Mixture Synthesis (FDMS) of Hydantoin-Fused Hexahydrochromeno[4,3-b]pyrroles

In diversity-oriented synthesis, generation of stereoisomers is as important as skeleton and substitution variations. Preparation of diastereomers for QSAR studies is one of the major tasks in medicinal and agricultural chemistry. The fluorous diastereomeric mixture synthesis (FDMS) is developed as a new solution-phase method for the synthesis of diastereomeric products. The mixture of fluorous-tagged diastereomeric intermediates could be easily isolated by fluorous solid-phase extraction (F-SPE) without separation from each other, which overcomes the major separation issue and increases the efficiency of mixture synthesis of diastereomers. In this project, diastereomers of hydantoin-fused hexahydrochromeno[4,3-b]pyrroles were synthesized by FDMS and isolated for potential biological test.

291 Auditorium 2:30-3:15 Board 19A
Vanessa Monteiro Vieira
David Manke (Faculty Sponsor)
Department of Chemistry, UMass Dartmouth
Mixed Early/Late Transition Metal Complexes

In an attempt to couple the reducing potential of early transition metals with the lability of late transition metals, the preparation of a ligand that selectively coordinates one early transition metal and one late transition metal, but restricts substrate access to only the late metal is being pursued. The work centers around ligand design that has “hard” internal amido ligands favoring an interaction with the “hard” early transition metal, and “soft” external thiolate ligands which favor an interaction with “soft” late transition metals. The long term objective of the project is to look at the prospects of these bimetallic systems for metal-oxo activation, particularly as it relates to carbon dioxide reduction.
Presenters • Poster Sessions

292 Auditorium 2:30-3:15 Board 13A
Daniel Olson
Jesse Marcum (Faculty Sponsor)
Department of Chemistry, Framingham State University
Investigation of the Role of Solvent on Chemical Bond Breaking

The role of the tetrachloroauroate ion (AuCl4-) in a number of important synthetic and geochemical processes is largely dependent upon how Au-Cl bonds are broken. Previous work has shown that gas-phase fragmentation of AuCl4- occurs by a mechanism where the excess charge remains on the gold fragment, resulting in the products AuCl3- and Cl0. However, these studies also suggested that when tetrachloroauroate is fragmented in an aqueous solution, it may favor a mechanism where the excess charge remains on the chlorine atom, resulting in a neutral AuCl30 fragment and a chloride ion. This behavior suggests that different solvents and/or halogen ligands could be used to influence specific fragmentation mechanisms. By describing the intrinsic properties of other tetrahaloaurorates ([AuX4]-), one may obtain insight into the mechanism by which solvent influences electron transfer during bond breaking. In this work, density functional theory was applied to investigate the fragmentation of several tetrahaloaurorates in both the gas-phase and in aqueous solution. The influence of both solvent and ligand identity on the details of fragmentation, specifically electron transfer, will be discussed.

293 Auditorium 2:30-3:15 Board 18A
Tyler O’Neil
Michael Knapp (Faculty Sponsor)
Department of Chemistry, UMass Amherst
Substrate Triggering of HIF-Prolyl Hydroxylase Connects Substrate Binding to Catalysis

In humans, oxygen sensing is controlled by enzymes known as HIF-hydroxylases (hypoxia inducible factor). These enzymes hydroxylate the transcription factor hypoxia inducible factor-1 (HIF-1α). The primary regulator of HIF-1α is the enzyme HIF-prolyl hydroxylase domain-2 (PHD2). It is deemed the main regulator due to its higher expression level than other isoforms of PHD. In the presence of O2 (normoxic conditions), PHD2 hydroxylates Pro402 and Pro564 of HIF-1α, marking it for proteosomal degradation. Under low oxygen conditions (hypoxia), HIF-1α activates transcription for genes that affect angiogenesis, erythropoiesis, and ischemia. For this project I address PHD2’s rate-limiting step (Part II) as well as overall inhibition of the enzyme (Part I). Part I tests whether exogenous metal inhibition is the result of binding to a secondary site. This binding site is believed to consist of two cysteine residues (Cys201 and Cys208). It is proposed that metal binding to this secondary site induces allosteric changes that affect the overall flexibility of the enzyme. Thus, inhibiting PHD2 function. In the second portion I address the rate limiting step. Results from X-ray crystallographic data indicate a possible hydrogen bonding network with the Fe(II) cofactor within the active site. This network includes Trp389, Thr387, and Thr325. By performing an alanine scanning mutagenesis we predict that the steady state constants will be hindered as compared to wild type-PHD2. Further understanding of PHD2’s rate-limiting steps and overall inhibition may provide therapeutic potential for many biological processes.

294 Auditorium 1:30-2:15 Board 20A
Corey Pasakarnis
Wei Zhang (Faculty Sponsor)
Department of Chemistry, UMass Boston
Coupling of Fluorous Sulphonates with Phenols to Form Ether Linkage

Numerous heterocycles containing ether bonds are known to have biological activities. The carbon-oxygen bond can be generated by palladium-catalyzed coupling of aryl halides or sulfonates with phenols. In this work the fluorous sulphonate substrates were used for the coupling reactions to form the ether linkage. Separation of fluorous compounds can be facilitated by fluorous solid phase extraction (F-SPE). It is a “greener” technology which significantly reduces the solvent waste for compound purification. In addition, synthetic efficiency is also improved by using the microwave for the coupling reactions to reduce the reaction time and chemical waste.
A greener method for the screening of chloramphenicol (CAP) in shrimp was tested and compared with the traditional method. Traditional solvents used were methanol and hexane, while the green solvents used were ethanol and heptanes. Shrimp from six different food markets were tested. The efficiency of the extraction method was determined by injecting shrimp of known CAP concentration with the antibiotic before extraction. Retrieval of the antibiotic was then quantified and analyzed using HPLC-UVD. This greener method is beneficial in providing a safer and more environmentally friendly procedure for the chemical screening of the antibiotic chloramphenicol in shrimp.

The Chambers group is working in collaboration with the Healey behavior physiology lab at UMass to help study neurosteroid activity in the brains of songbirds. The Healey group is particularly interested in 17β-estradiol and monitoring the activity of aromatase, the enzyme that produces it, in the brain during behavior development and expression could tell us about the neurohormonal role of estradiol. Currently, a fluorophore is being synthesized to trace aromatase activity in the brains of songbirds. There are three main steps in the synthesis of this fluorescent reporter. The first and second steps, the synthesis of dibenzylfluorescein and the subsequent base hydrolysis of dibenzylfluorscein, have been successful, and the products confirmed by TLC and NMR spectroscopy. The final step, the addition of the acetoxyethyl ester to the carboxylic acid group, is currently in progress. Once the fluorescent reporter has been synthesized, in vitro fluorogenic assays will be run using commercially-available enzyme as well as brain tissue from the Healey lab to test the effectiveness of the reporter. If the synthesis is successful, the Healey group will be able to use the compound in the songbird’s brain to monitor the enzymatic activity. Songbirds serve as good models of neuroplasticity and communication development in other vocal learning species such as humans. The Healey group hopes that by understanding more about the complex process of singing, particularly the steroids involved, they can unravel the mechanisms taking place in the brains of humans during speech learning. This, in turn may help with designing drugs for people with communication disorders.

The purpose of this project is to evaluate the effectiveness of biological nutrient removal (BNR) for algal bloom mitigation. Special emphasis is placed on algal species differentiation and identification of the corresponding wastewater effluent nitrogen distribution. Wastewater treatment plants in New York and Connecticut have reduced total nitrogen discharged into the Long Island Sound (LIS) by upgrading to BNR systems to ameliorate algal eutrophication. Despite these upgrades, the LIS shows further increases in seasonal algal blooming. Previous work has been performed by Dr. Chul Park, with funding from the Springfield Water and Sewer Commission, to analyze algal growth induced from mixing LIS and Connecticut River water with effluents from conventional activated sludge (CAS) and BNR systems. These studies, however, are dependent on comparing two treatment methods on two different wastewater sources. This study will add more control by investigating two different treatment methods using the same influent wastewater. The primary emphasis of this research project is on the bioavailability of effluent wastewater from two bench-scale wastewater treatment plants. Both wastewater treatment plants treat six liters of Amherst Wastewater Treatment Plant (AWWTP) primary effluent per day using sequenced batches. One batch reactor treats wastewater
using strictly aerobic reaction while the other uses nitrogen purging to create cyclic anaerobic periods followed by aerobic periods. Once both reactors have reached steady state equilibrium, the effluents and Amherst Wastewater Treatment Plant effluent were categorized and combined with LIS and Connecticut River Water in “bioassays”. In these bioassays, algal growth characteristics were analyzed using characteristics such as COD, protein, and polysaccharides and through microscopy. This process was preformed once during Fall semester and will be replicated twice during Spring semester. This study compares the ionic and total nitrogen found in the BNR effluent as compared to CAS effluent and how these differences are correlated to differences in algal growth and species. At the conclusion of this project, the following question will be better understood - “Why are nitrogenous compounds found in BNR effluents bioavailable to algae?”

298 Auditorium 9:00-11:00 Board 25A
Alexander Flinn
Peggi Clouston (Faculty Sponsor)
Department of Civil Engineering, UMass Amherst
Evaluating Dowel-Bearing Strength for Laminated Bamboo Lumber (LBL) in Structural Applications

The environmental impacts of typical building materials like steel, concrete, and timber are under increasing scrutiny as society moves toward a more sustainable future. Research in the field of bamboo has shown that it is an economically, environmentally, and structurally viable option to challenge the traditional building materials of today. However, standards and design guidelines for bamboo, in particular laminated bamboo, as a structural material are not complete, and more research is necessary before it can be safely implemented. This study examines a key property for Laminated Bamboo Lumber (LBL) that is necessary in the design of nailed or bolted connections: dowel-bearing strength. Specimens were machined and tested in accordance with ASTM standard D-5764 for evaluating dowel-bearing strength of wood and wood-based products. Six different grain angles were tested for two standard dowel sizes to determine the relationship between angle-to-grain of loading and dowel-bearing strength. This relationship is known for wood and is expressed by Hankinson’s Formula. As LBL is similar in composition to wood, it is expected that it will follow a similar relationship. With this knowledge, designers can better predict how LBL will perform in structural applications.

299 Auditorium 9:00-11:00 Board 29A
Timothy Light
Carlton Ho (Faculty Sponsor)
Department of Civil Engineering, UMass Amherst
Strength Properties of Rail Ballast Subjected to Moisture and Fouling

Crushed rock, or ballast, provides the foundation for nearly all of the rail networks worldwide. Given the widespread use of ballast, understanding the impacts of its degradation over time is essential to maintaining the desired performance of the tracks. Fouling, the accumulation of fine soil particles in ballast, is one of the chief concerns for railway maintenance, and occurs through natural transport processes (wind and precipitation) and the crushing of the ballast over time. As fouling becomes more severe, it has the capacity to undermine the strength of a rail bed under loading. To research the impacts of fouling materials following a thorough flushing, such as a rain event, large ballast samples are being tested. Consolidated, 6-inch diameter, drained triaxial tests are underway on ballast samples containing 0%, 10%, and 20% fouling particles (passing the #10 sieve) respectively. The tests provide load and axial and circumferential strain data for wet ballast, at confining stresses of 5, 10, 15, 20, and 25 PSI, for a total of 15 triaxial tests. Upon completion of the laboratory work, data analysis will yield shear strength, stress-strain, volumetric strain, Poisson’s Ratio, and modulus parameters for each sample subjected to the varying confining stresses. A similar analysis has already been completed for dry ballast samples, allowing the impact of water to be clearly identified in rail ballast.

300 Auditorium 9:00-11:00 Board 28A
Philip MacClellan
Michael Knodler (Faculty Sponsor)
Department of Civil Engineering, UMass Amherst
Identification of Applicability for Implementation of the Flashing Yellow Left-Turn Arrow in Massachusetts
In 2003, NCHRP Report 493 recommended the use of the flashing yellow arrow (FYA) indication for protected-permissive left turn (PPLT) traffic signal control. The FYA provides motorists with an indication alerting them that they can make a left turn at an intersection if there is an appropriate gap in oncoming traffic. Subsequently, the 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD) included the FYA as an allowable alternative to the circular green indication for permissive left-turns. Although a myriad of jurisdictions across the United States have since installed FYAs at signalized intersections, Massachusetts has yet to install any FYA indications. The purpose of this study is to evaluate driver comprehension of the FYA permissive indication in both Massachusetts (where there are no FYA indications) and Oregon (where the FYA is widely used). More specifically, this research replicates the original experiments conducted during NCHRP Report 493 by using computer-based static evaluations to assess driver comprehension of the FYA and circular green permissive indications. A second survey explores the ability of drivers to accurately predict the next phase in the sequence at intersections with PPLT phasing and addresses potential concerns about an increase in driver confusion resulting from implementation of the FYA permissive indication. When complete, the driver comprehension data will be analyzed with respect to current results versus the original NCHRP research. The results will be used to demonstrate the viability of the FYA as an appropriate alternative for signalized intersections in Massachusetts.

301 Auditorium 11:35-12:20 Board 17A
Noel Mangual
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Evolution of Aerial Technology

One of the national defense's most important assets is maintaining an aerial presence as a deterrent against attacks abroad and at home. Maintaining air superiority has required constant change and adjustment in aerial technologies. Companies like Lockheed Martin are constantly implementing innovations to keep enemies at bay. The military community is the first to put these advancements into practice so that the rest of the population can benefit. Using interviews with pilots (civilian and military) as well as literature review, this project explains pilots' perspectives on the impacts that changes in aerial technology have had on military and civilian applications. Interviews with previous pilots as well as current ones, discuss how technological implementations contribute to combat readiness, and also to important improvements in air transportation. The perceived impact of the invention of the jet engine was shown to be of particular importance. Much of the discussion focused on how the jet engine has “turned the world into one neighborhood,” allowing a person to be anywhere in 24 hours.

302 Auditorium 9:00-11:00 Board 30A
Thomas Rogg
Sergio Brena (Faculty Sponsor)
Department of Civil Engineering, UMass Amherst
Generic High Early Strength Concrete for Bridge Repair

There is a demand to replace bridge decks and repair them in a short construction time in order to minimize inconveniences for drivers using these bridges. Concrete, a material that gains strength with time, is commonly used for these repairs. Rapid hardening concrete mixes cut down on strength development time from 28 days down to a few hours. The goal of this project is to create a rapid hardening concrete mix design that has a minimum compressive strength of 2000 psi by 12 hours after mixing. This concrete will then be able to be used in overnight bridge deck repair and replacement. The first phase of testing in this research involved designing eight different concrete mixes using admixtures from a single chemical admixture company. Compressive strength and split tensile strength tests were conducted at maturity times of 3 hours, 7 hours, 24 hours, and 7 days. The second phase of testing will consist of using the top two performing mixes identified in phase I and fabricating mixes using admixtures from two different companies. These hardened concrete mixes will be tested at 8 hours, 12 hours, and 24 hours. The tests will be used to determine if the generic designs meet the design requirements independent of admixture manufacturer. Anticipated conclusions are identifying the mix design that best satisfies the strength objectives.
HONORS

303 Auditorium 11:35-12:20 Board 29A
David Dillon
Mary Kay Cordill (Faculty Sponsor)
Department of Sociology, Cape Cod Community College
The Fear of Intimacy

The fear of intimacy, an anxiety disorder, is the fear of being physically and emotionally close to another individual. This phobia places limits on a person’s ability to form and maintain successful relationships. This project is a critical review and reassessment of existing research aimed at discovering what life experiences can lead to a fear of intimacy and what the affects of this social phobia are on the individual. Studies will prove that a fear of intimacy stems from a mental lack of self worth, that individuals with depression or childhood issues are more likely to have this phobia, and that a fear of intimacy, though a largely unconscious process, has a direct effect on a person's behavior. Research will include a careful analysis of recorded works and studies conducted by such professional psychologists as Dr. Paul Margaret and Robert Firestone.

304 Auditorium 11:35-12:20 Board 30A
Rebecca Francis
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Proxemics

Proxemics is the study of the spatial distance between individuals culturally, behaviorally and sociologically. Edward T Hall has extensively documented the behaviors people adopt for the purpose of setting boundaries and staking a claim to privacy. For instance, humans use furniture, walls and fences to identify their private territory. Today the internet and social media have vastly changed our traditional view of personal space and privacy. Social media encourages users to let down their personal walls, making what we once shared in private now shared publicly. My research will ask the following question: How does this online sharing affect our society, either negatively or positively. People can have extreme boundaries that mark their personal space, in a way that we all tend to walk around in an invisible bubble. This bubble so to speak changes depending on the situation as well as the individual. Individuals who are intimate may cross the sphere without harm to either individual but invasion from others can cause stress and anxiety of a variety of levels.

305 Auditorium 9:00-11:00 Board 32A
Christopher Meehan
Leda Cooks (Faculty Sponsor)
Department of Communication, UMass Amherst
Dialogic Approaches to Negative Influences that Students Face in High School

The time which students spend in high school can be a determining factor in their lives as adults, especially since there are many negative influences which students will face and these may defer their positive futures. This study on the dialogic approaches to negative influences in high school will investigate the possible outlets for influence in their environment and aims toward having the students discuss what the triggers are that inhibit them to succeed, while also finding new approaches to overcome these obstacles. The influences that students have in high school can range from family and peer relationships, environmental settings, illicit activities, a lowered set standard in and outside of the school for the students, and the inability to communicate with others for positive reinforcement. This research will help understand what obstacles students face and the ways students can find motivation beyond the barriers that limit their success. Through a series of dialogues, the students will discuss their motivations and may become more aware of the shared environment of their peers. There will be five dialogue sessions with New Leadership Charter School in Springfield, and approximately fifteen to twenty students per session. The dialogues will provide a comfort zone where students can freely express the concerns they have, and the approaches which they believe can positively rectify an educational space of motivation within the negative influences in their environment. When the students become more aware of what obstacles they face, these dialogues will let the students understand each other's perspectives while also allowing them to find new approaches through communication to succeed during school and after graduation.
306 Concourse 11:35-12:20 Board 64C
Min-Kyoung Shin
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
I do? Marriage in South Korea, 1970-present

How has women’s attitude and society’s attitude in general of marriage changed in South Korea? In the last 30 years, awareness and concepts of marriage have changed a lot. In the past, most people believed that women should be married by the age of 30. If a woman was single after the age of 30, people thought there was something wrong with them. However, nowadays women who have careers postpone getting married or do not care about age-limits because of their careers. Thus, women’s age at marriage is higher than in the past. Furthermore, the rate of divorce has increased from the 1980s to now. In the past, divorce was dishonorable, especially for women, while now divorce is easier because their understanding of it has changed. I will include information and quotes from magazines for the real stories about Korean women’s marriages. I will also extract stories from dramas or romance novels that represent what women have fantasized about to determine how these attitudes have changed in the past and present.

307 Concourse 11:35-12:20 Board 63C
Alan Vilimaitis
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
First Impressions: how international students’ first experiences in the U.S. affect their development

The United States is a destination for thousands of international students from all over the world. They come with a dream of obtaining a better life. While many international students find some positive changes, their experiences rarely live up to the dream. It is important to know what they will experience before they first arrive in the United States. This research will find how international students are affected emotionally and psychologically when they first arrive in the United States. This research will use primary and secondary research from international students from South America, West Africa, and Asia. We will also conduct surveys, which will identify how each of those groups reacts differently to their first experience when they arrive in the United States. This research will better prepare international students to a better transition into United States life. It will show them what to expect beforehand so when they arrive in the United States they will be better prepared to deal with any obstacles.

COMMUNICATION

308 Auditorium 1:30-2:15 Board 36A
Samuel Adera
Michael Dubson (Faculty Sponsor)
Department of English, Bunker Hill Community College
How the Internet is Changing Science

The relationship between the internet and science is somewhat synonymous to the relationship of parents and children - science created the internet and the internet in turn is helping science. The internet has opened many doors for scientists and liberated them in terms of communication, sharing information, publication and conducting surveys. In order to investigate these changes this paper explores how the internet has affected natural and social science fields. This study compares research projects conducted before and after the widespread use of the internet. Analysis shows that the effect of the internet is mostly positive. The internet facilitates communication between scientists, speeds up the publication process, allows greater freedom and access to research, and facilitates large scale research using online survey methods. Potential problems are also discussed. Problems include bias in online surveys and access to potentially harmful scientific research. This research concludes that internet has, for the most part, changed science for the better but there must be more guidelines for online publishing and survey techniques.

309 Auditorium 11:35-12:20 Board 6A
Georgi Andreopulos
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Intimate Relationship
The purpose of this paper is to examine how contemporary researchers and authors are identifying, teaching, and exploring intimacy. Intimate relationships are risky voyages of discovery encouraged by human beings’ inherent thirst for relational connection, but do we know what leads to great reward or devastating failure? I will examine books that describe behavior as an emotional attachment in an interactive romantic relationship or dramatically exaggerated jealousy that lead to furious behavior. I may use Naked Intimacy: How to Increase True Openness in Your Relationship by Joel D. Block, Dangerous Passion by David Buss, Polyamory in the 21st Century: Love and Intimacy with Multiple Partners by Deborah Anapol, and The Othello Response: Dealing with Jealousy, Suspicion and Rage in Your Relationship by Kenneth Ruge.

310 Auditorium 11:35-12:20 Board 7A
Heather Bryden-Usher
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Listening Differences Between Men and Women

Listening is vitally important to successful relationships and to feelings of interpersonal warmth, closeness, and intimacy, and research suggests that there are distinctive listening differences between men and women. In this paper, I will establish the importance of listening in creating and maintaining relational intimacy. I will also identify some of the most significant dissimilarities between men and women, including the following: each gender’s purpose for listening, listening preferences, listening awareness, nonverbal listening behaviors, and interruptive behaviors. Furthermore, I will explore how intimacy in romantic heterosexual relationships is affected by these differences. Information about this topic will be derived from sources such as personal interviews, journal articles, periodicals, and books.

311 Auditorium 11:35-12:20 Board 5A
Francesca Delle Femine
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Introverts

American society has become one that rewards personality, and there is no personality rewarded more than one of the extrovert. The reverence of extroverted personality is affecting introverted Americans in education, work, and their sense of belonging in their own culture. This preference for the extrovert temperament significantly affects American introverts, representing one-third to one-half of Americans, and can lead them to question whether they have a deficiency of character. This research will focus on how this extrovert preference is affecting the way introverts build personal relationships and express intimacy in the 21st century. This relationship between culture and temperament can be explored on American television. Using published works on introverts and American culture, web and journal articles, and observation of television, this paper explores how this bias is impacting introverts’ relationships and views on intimacy. Sitcoms and dramas will be viewed to see if the societal bias for the extrovert ideal yields negative consequences for the introverted characters. The design of the Internet offer introverts easier ways to express emotions and build relationships. This technological take over, however, is also making it difficult for introverts to find time alone, leaving them to question just how loud cyberspace is. Ultimately, though, the Internet offers introverts a community of validation that proves they have a place in American society and that they’re not alone.

312 Auditorium 1:30-2:15 Board 25A
Emily Dewsnap
Samuel Tobin (Faculty Sponsor)
Department of Communication, Fitchburg State University
Time in the Realm of Video Games

There are many elements which make up video games such as graphics, story lines, and space but time is an important component. Overlooking this element would be doing a great disservice since important design aspects would be neglected. In the realm of video games, the element of time thrives on antagonizing or helping the player, can affect game environment and can provide an interesting play experience among many other factors. To understand the way time operates in the context of video games is to know how to design a better game. In my paper I explore the concept of time from a literary standpoint, breaking down how it works into categories such as in-game and out-of-game
time. Drawing from the work of Eric Zimmerman, Steven Poole and as George Skaff Elias as a foundation, my purpose is to highlight what makes time such an important game design element. With this research I want to build a better understanding of how time operates in the video game setting and why it should be examined when going through the creative process of developing a new game.

313 Auditorium 11:35-12:20 Board 3A
Camille Dings
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
An Analytical view of the “Trophy Wife”

The characteristics of “trophy wives” include a perfect body, plastic smile, and a vacant brain. This study examines reasons why women conformed to this role, and traces the 21st century ideal of a trophy wife from what once was a piece of “arm candy” to what is now a symbol of intellectual strength and power. The study focuses on the relational intimacy and satisfaction of trophy wife marriages and questions how physical attractiveness, intelligence, and personality are related to interpersonal closeness. By looking at children’s perceptions of wives and marriages in both real life and mediated portrayals, we can identify how a set of expectations for marriage and what is involved in it begins to develop long before relationship formation behavior actually begins.

314 Auditorium 11:35-12:20 Board 8A
Sara Fredd
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Social Media and Privacy: Communicating with Strangers in the 21st Century

Currently there are more devices connected to the Internet than there are people walking the Earth to use them. Social media has revolutionized the way humans communicate, opened the lines of communication to span across countries between complete strangers, and created one of the largest connected networks of people ever in existence. These newfound relationships have allowed collaborations between people with similar interests—whether they live geographically close or not. However with this information highway come responsibility and choice. The choice of what to expose on social media and what to kept private. While privacy has always been highly valued by some, social media users are intentionally revealing intimate details about their everyday lives, accessible by anyone with a cell phone in their pocket. Consequentially, social media users are able to build an intimate portrait of a person they have never met, completely due to the sensitive nature of information posted. Would social media users reveal the same personal information face-to-face with a stranger?

315 Auditorium 11:35-12:20 Board 1A
Melisia M Wallace
Lauren Kirby
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Relationships and Technology

Technology and Friendships Among Young Adults Abstract This paper will focus on the effect technology has on human relationships and friendship building among young adults ages twenty to mid-thirties. Texting, Tweeting, Facebook and chat rooms give people the feeling they are surrounded by friends but also may be robbing them of human connection. Are phone and Facebook relationships a teenage stage that young adults outgrow, or does this behavior continue into adulthood? Through a review of the literature, I will examine if humans’ innate need for connection can be met by mobile devices and computers. Are young adults relying on their social media status instead of their real-life accomplishments to give them a feeling of security? And because technology presents people in an edited form, without the flaws that are revealed when a face-to-face conversation takes place, do these flaws that show “the real us” help or hinder us from building strong relationships?
316 Auditorium 1:30-2:15 Board 35A
Anna Kudryashova
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Concept Analysis of the Term “Foodie” in the Context of New Media.

As a result of environmental concerns and increased awareness of the role that healthy eating plays in overall well-being, the natural foods industry has shown significant growth over the last 10 years. The availability and affordability of healthier food options has changed our perception of food and has added aesthetic and moral components to its basic-need function. Relatively little work has focused on the change in the public perception of food and the emergence of the “foodie” phenomenon. The term “foodie”, originally a derogatory term, lost its negative connotation and evolved into a status symbol, only to re-gain its notorious reputation today. This paper focuses on the concept analysis of the term “foodie” and attempts to explain usage trends and positive vs. negative connotations of the word in the context of new media. Quantitative analysis of media reviews (blogs and social networking sites) tracked the popularity and usage frequency of the term “foodie.” Qualitative research methods were employed for the context analysis and the philosophical evaluation of the concept. The research results illustrate growth of negative connotations associated with the concept of “foodie.” This trend indicates a disconnect between the definition of the term “foodie” and its actual usage. The analysis also identified that foodies as a social group are often be viewed as elitist and discriminatory, the latter revealing both conscious and subconscious undercurrent trends in American society. Our findings suggest that the “foodie” phenomenon can be a positive social trend as well as a discriminatory tool that reinforces social inequality.

317 Auditorium 11:35-12:20 Board 4A
Colleen Meehan
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Managing the damage created to relationship intimacy due to PTSD resulting from previous negative relationships and childhood physical and psychological abuse.

Physical and psychological abuses during childhood have extreme consequences for not only the afflicted individual, but also for his or her future relationships. Intimacy is something developed over time between individuals. If one party carries emotional damage from childhood abuse, how does that inhibit his or her emotional growth and the ability to engage in healthy and successful intimacy as an adult? Examining how abused individuals process their childhood experience can be used to predict the healthy or unhealthy dynamics of future relationships.

318 Auditorium 11:35-12:20 Board 2A
Ali Quin
Mary Kay Cordill (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Overseas and at Home: Maintaining Relationships for Service Members and Their Families

Service men and women must be apart from their loved ones for extended periods of time. This affects the family relationships that the service person had created before deployment. How these long-distance relations are maintained both during deployment and upon return determine the success of these connections. Research was conducted using information on maintaining long-distance relationships, studies relating to members of the armed forces and their loved ones as well as reports on how relationships are changed when soldiers return with PTSD. Spouses of Marines were also interviewed in order to gain first-hand perspective and insight. With the number of servicemen and women deployed currently and veterans, it is important for them and their families to understand how to maintain intimacy and communication for successful relationships overseas and at home. By collecting a variety of information, this research may help people whose lives are involved in the armed forces better cope with the emotional struggles during deployed and return.
Presenters

319 Auditorium 1:30-2:15 Board 37A
Rebekah Tracy
Christopher Bowen (Faculty Sponsor)
Department of Communication, Framingham State University
Niah's Song: A Study of the Cinematic Aesthetics of Post-Production

Every film tells a story. Some films are cheerful and happy, while others are not. As filmgoers, we can often tell the tone of the film simply by observing posters and DVD cover art because we know from the color palette what to expect. What gives a film its emotion is not simply the script and the actors’ portrayal of the characters. Instead, there are many more subtle elements that operate in the background of every shot and scene which often only subconsciously affect the viewer. This is because a film is far more than just a procession of images. It is also a combination of many other individual aesthetic pieces: the sounds that fill the environment, the symbolism of the costumes, the unique color tones of each sequence, and the music that carries one scene to the next. In an effort to better understand this process of filmmaking and all of the elements that are a part of it, I wrote, directed, photographed and edited an original film. My research methods include studying the theories of traditional editing and pacing, the meaning of color in film and its purpose to externally reveal the inner emotions and turmoil of the characters, and finally how diegetic sounds and non-diegetic sounds (such as the soundtrack) work to create the mood of the scene. I am exploring the use of these elements of post-production that establish for the viewer the characters’ emotions, the broader emotional tone and subtextual message of the film.

COMMUNICATION DISORDERS

320 Auditorium 1:30-2:15 Board 26A
Maryanna Owoc
Keith Darrow (Faculty Sponsor)
Department of Communication Disorders, Worcester State University
Optogenetic activation of central auditory neurons

Currently, central auditory prostheses use electrical stimulation to elicit the perception of sound. The spread of electric current limits effectiveness of these devices by reducing the number of available independent channels and often having side-effects of activating non-auditory pathways. Optogenetic stimulation of central auditory pathways has been proposed to improve specificity. To test the effectiveness of optogenetic stimulation of auditory pathways the light-sensitive ion channel, Channelrhodopsin-2, was delivered via adeno-associated virus (AAV2/8-ChR2-GFP) to the left cochlear nucleus (CN) in CBA/J mice. Following a 2 to 4-week incubation, the mice were re-anesthetized and blue-light stimulation was delivered via an optical fiber to the surface of the CN. Multi-channel recordings of the inferior colliculus and auditory cortex revealed an increase in neural activity during blue-light stimulation that spanned the tonotopic gradient of these nuclei. This spread of activity was consistent with histological verification of transfection across the tonotopic axis of these nuclei. No increase in activity was observed in those cases with no ChR2 expression and in controls. The effects of pulse-rate were explored, as well as comparing optical stimulation to acoustically and electrically driven responses of these pathways. The data suggest that optogenetic excitation of central auditory neurons is feasible and may provide the basis for a new generation of optically based neuroprosthetic devices.

COMMUNITY OR PUBLIC SERVICE

321 Auditorium 9:00-11:00 Board 48A
Sara Pedersen
Kenneth Magarian (Faculty Sponsor)
Department of Community or Public Service, Westfield State University
Westfield State University Circle K Club

The Westfield State University Circle K Club was founded in 1970 by the Kiwanis Club of Westfield, Massachusetts. This club upholds the ideals of service, fellowship, and leadership. Since its origin, the Westfield Circle K Club has implemented and sustained service projects locally and throughout the New England District. Some recent projects include the Second Annual Westfield City-wide Spelling Bee, Jail and Bail (benefit children with life threatening illness, Camp Sunshine, Casco, ME), Breakfast with Santa, and the March of Dimes Calendar Raffle. As one of the largest
Circle K clubs in the New England District, the Westfield State Circle K welcomes students on the university campus and organizes a plethora of projects in which students can become involved. The service projects benefit both the community and students. Circle K brings together a diverse group of students and community members who share a passion for service. Through service projects and fellowship events, life-long relationships are created and sustained. The Westfield Circle K welcomes new ideas and works collaboratively and creatively with students, faculty, and multiple branches of the Kiwanis family to enrich their experiences and communities.

**COMPUTER SCIENCE**

**322 Auditorium 2:30-3:15 Board 43A**

Jennifer Tran  
Michael D Picchioni  
Manuel Camargo  
Karen Druffel (Faculty Sponsor)  
Department of Management, Framingham State University  
**Communicating an IT company’s sustainability through Social Media**

The purpose of this study is to determine how three major Information Technology (IT) companies communicate sustainability efforts using social media. The methodology utilized is a mixed-method design to qualify and quantify empirical material. The material collected is in the form of messages selected from three social media outlets: Facebook, Twitter, and company Blogs. The messages are collected on random dates during the months of February and March 2013 and stored in an Excel spreadsheet for analysis. As a company’s environment changes, sustainability efforts tend to change as well. Hence, stakeholders’ concerns need to be taken into account to implement a successful strategy that will support a variety of concerns such as social responsibility, environmental responsibility, and economic responsibility. The intent of this research study is to determine if a relationship exists between social media messages to customers and sustainability.

**CRIMINOLOGY**

**323 Auditorium 1:30-2:15 Board 1A**

Stephanis Grand-Pierre  
Vincent Ferraro (Faculty Sponsor)  
Department of Sociology, Framingham State University  
**Playing the Blame Game: A Study on Immigration and Crime in the United States**

For many years there has been the popular idea that immigration leads to crime; immigration has been perceived as the cause of crime in the United States. The matter has produced an ongoing debate in politics but also in other fields like sociology. Many believe that there is a strong connection between crime and immigration possibly because of media effects. This research uses quantitative analysis of secondary data collected from the United States Census Bureau and the Federal Bureau of Investigation’s Uniform Crime Reports. These secondary data are from the city/town level with a sample size of 1,552. The literature on segmented assimilation theory suggests that immigrants may be less likely to engage in criminal activity when coming to the United States due to cultural morals they grew up with. In contrast, social disorganization theory suggests areas with a high concentration of immigrants are more likely to have higher crime rates. This research expects to find that there is no connection between immigration and the crime rate in the United States and will not support the social disorganization theory. This study will help contribute to the debate of crime and immigration because it will shed light on the common misconception that immigration increases the crime rate in the United States. By analyzing the data and results compiled from the researchers, it will influence people to have another look on the relationship between immigration and crime.

**ECONOMICS**

**324 Auditorium 1:30-2:15 Board 34A**

Maria DeGenova  
Sheila Mammen (Faculty Sponsor)  
Department of Economics, UMass Amherst
Effects of Avoidable Emergency Room Visits on Rising Health Care Costs

Avoidable emergency room visits are just one of many issues that exacerbate the rising costs health care in the United States. This paper focuses on the different reasons why patients turn to emergency departments for treatment on issues that could have been treated elsewhere or that could have been avoided all together. It looks at patients who frequent the emergency room for non-emergent and/or other reasons that may be treated through primary care. Results of previous studies done across the country have shown that the underlying issue seems to be that patients substitute the emergency room for a primary care provider. Rationale for visiting the emergency room includes not being able to reach a primary care provider, not knowing patient options, and the convenience of the emergency room. In most cases, however, it was found that if primary care was made an effortless option, the patient would have gone there instead. The misuse of the emergency room not only drives the costs of health care, it also creates burdens for the economy and puts patient care at risk. The goal of this paper is to analyze the fundamental causes of avoidable emergency room visits, discuss public policy implications, and present solutions to limiting the number of avoidable emergency room visits.

325 Auditorium 1:30-2:15 Board 33A
Lindsay Hamilton
Robert Jones (Faculty Sponsor)
Department of Economics, UMass Dartmouth
Do the prices of college textbooks affect starting salaries?

This study explored the relationship between the cost of college textbooks and the starting salaries. We analyzed the book prices of eleven different majors: Biology, Chemistry, Criminal Justice Studies, Economics, English, History, Mathematics, Philosophy, Political Science, Psychology, and Sociology. The study shows that there is no significant correlation between the book prices and the starting salaries; however, there was a significant relationship between the starting salaries and the year in which the student graduated. This is understandable due to the recent 2007 recession and the drop in the demand for entry level positions. This study will also include the unemployment rates and the change in GDP when the students graduate.

EDUCATION

326 Concourse 1:30-2:15 Board 53C
Charles De Farias
Michael Dubson (Faculty Sponsor)
Department of English, Bunker Hill Community College
Comparing Difficulties of STEM Courses between Community College and 4 Year Universities.

Many community college students are older returning students, immigrant ESL students, and students who are seeking to improve a poor academic past. By providing more academic support, community colleges help such students bridge the gap between high school and four year universities. Because of this unique objective, community college courses have earned a reputation for being easy. This study sets out to determine if there truly are differences in academic rigor between community college and four year college STEM courses. Using qualitative inspections of syllabi from general biology, introduction to engineering, Calculus 1 & 2, and introduction to physics courses this study compares levels of course difficulty between community college and four year colleges courses. Course difficulty was measured by: A) the book used & number of chapters covered, B) resources provided to students, and C) types of lab exercises and reports and D) number of tests. Professors and students were also interviewed to confirm if syllabi were accurate. Results showed that while community colleges had a slightly lower course difficulty index, a large gap in difficulty did not exist. The outcome suggests that most STEM course at the community colleges studied are on level with those same courses at the university. However, the outcomes merit a more detailed study that would include actual student work from tests, lab exercises and written assignments. Such a study would provide even greater verification of the results.

327 Concourse 1:30-2:15 Board 54C
Daniel Paac
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Building a Strong Educational System
After two decades of bloody civil war, the Republic of South Sudan gained its independence on July 9th, 2011. The new nation now suffers from high rates of poverty that leads to social and cultural problems. One key social problem that must be addressed how to build a strong educational system. This research seeks to answer the question, “What are the best practices for building a strong educational system in South Sudan?” To answer this question the research is performed in two stages. First, a co-creative process consisting of interviews of South Sudanese both in the US and in South Sudan was employed to determine which are the most important areas that must be addressed. Interviews produced four key factors to investigate: How to: (1) put strong leadership in place; 2) engage and include the public in decisions and plans; 3) create a clear vision and strategic plan; and 4) commit to a long term development plan. The second stage consisted of a literature review of primary and secondary sources to find the best practices from other areas of Africa and the developing world that could address the four key issues above. Lastly, a development plan following the best practices the four main education concerns was created. Implementing this plan will result in a sound educational system which will in turn contribute to improvements in the areas of medical care, community development and facilitate growth and development in 21st-century South Sudan for generations to come.

328 Concourse 1:30-2:15 Board 55C
Helene Tran
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Landlord-Tenant Law Changes Have Been Favoring the Tenants in Mass
Massachusetts is one of the states that have the strictest landlord-tenant laws. For many years, tenants had very few rights and were at the mercy of the landlords. Presently, the laws have shifted towards the tenants who are much better protected from abusive landlords, but anecdotal evidence suggests that the laws may have swung too far in favor of the tenants. This project investigates claims the landlord tenant laws in Massachusetts are now abused by tenants and leave landlords at a strong disadvantage. To conduct the research, I gathered and collected factual information online, through articles and books, to analyze the changes in landlord tenant law. I also conducted interviews with landlords who were being taken advantage of by tenants. Results showed that tenants, who thoroughly know their legal rights may attempt to obtain multiple months of free rent, and in some cases, even acquire compensation from the landlords. These results suggest that law changes have gone beyond justice and are now biased against the landlords. In conclusion the study proposed possible changes to landlord-tenant laws that could facilitate a balance so both the landlords and tenants have a fair and equal rights.

ELECTRICAL ENGINEERING

329 Auditorium 1:30-2:15 Board 38A
Christian Melendez
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
Male Gaze, how has it impacted society?
Men and women have been conditioned to view women and themselves through the perceptions of the heterosexual male by views in various sources of media and this belief is called the Male Gaze Theory, formulated by Laura Mulvey in 1975. Women have always experienced constant discrimination based on female stereotypes set from history and our society's culture such as fragility, sex objects, and subservient to males. The feminist movement has sought to change the negative standards of women set by male dominant publications. Despite the attempted alterations, adverse female stereotypes continue to survive today so much that women themselves have begun to believe and incorporate them in their way of life. This paper researches the portrayal of women through the agency of male dominance in media and applies it to feminine lifestyles and feminist theories to further exploit its effect and existence. In conclusion, exploring and understanding outlets of media it becomes evident focused masculine views have an impact on not only men but also women based on the theory that is the male gaze.
ENVIrONMeNTAl STUDIeS

330  Auditorium 11:35-12:20 Board 41A
Philip Ashley
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
An Analysis of Bottled water Use at Westfield State University

Our poster will present the environmental impact of plastic water bottle use at Westfield State University. The failure to recycle water bottles around the country and even the globe has become a major problem due to their increasing popularity. Many water bottles are tossed in the trash due to convenience, rather than finding the proper recycling bin to throw them in. Over time millions of water bottles end up in landfills. This poster presents the results of our research on how Westfield State University contributes to this problem by quantifying how many bottles are used on campus and the fate of those bottles. We are also creating and submitting a proposal to the University governance to ban the sale of single use plastic water bottles.

331  Auditorium 2:30-3:15 Board 20A
Arianne Barton
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
How plastics will affect the growth, eating habits, and lifecycle of Triops spp.

Microplastics have become a large environmental issue, because they can disrupt the feeding habits of marine organisms by getting stuck in their mouths or building up in their stomachs and preventing them from digesting food properly. In order to study the effects of microplastics in an aquatic ecosystem, I will be experimenting with Triops spp. The genus Triops has been in existence for approximately 300 million years, well before plastics were invented. They are considered “living fossils” because they have hardly changed from the fossil records found of them. Triops spp. live in freshwater pools and ponds and feed by sifting mud through their mouths and tearing larger food particles into smaller pieces for digestion. Young Triops are known to consume mosquito larvae and aid in the prevention of West Nile Virus, and therefore are important to humans. These organisms are very hardy and can survive easily in captivity, so the goal of my project is to determine if man-made plastics of different sizes (fine, medium, coarse and granule sizes) will disrupt their growth, eating habits, and/or lifecycle. To ensure that other factors will not ruin my results, there will be several control groups (with no plastic in the containers) and several experimental groups (taken care of in exactly the same way as the control group, but with microplastics in the containers). I believe that plastics, particularly the finer grain sizes, will disrupt the feeding pattern of Triops spp. by being sucked into their mouths and getting stuck, preventing food from getting in.

332  Concourse 9:00-11:00 Board 66C
Raymond Bressette
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
An Analysis of Beef Consumption at Westfield State University: Environmental Impacts and Awareness

Our presentation focuses on the environmental impacts of factory farmed, inorganic beef vs. locally raised, organic, grass-fed beef and the awareness of WSU to those impacts. The presentation consists of three parts: the impacts on land use and land management; statistical data based on observations and surveys of students, faculty, and staff; and the impact on natural resources from producing each type of beef, such as fossil fuel consumption, carbon emissions, and water quality. Our surveys are based on defining how educated the faculty and staff of WSU are on the environmental impacts of purchasing each type of beef and the overall beef consumption rates of those individuals. From those data we will be able to determine the average beef consumption of WSU, and the impact it has on the environment. We will be doing on site investigations of both inorganic factories and organic, pasture-raising sites in order to assess the different types of impacts associated with each. Through those observations and surveys we will be able develop a strong correlation between WSU and the environmental impacts associated with those farming practice, and in turn helping us to promote environmental awareness at our University.
Presenters

• Poster Sessions

333  Auditorium 11:35-12:20 Board 45A
Andrew Christopher
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
The Environmental Impact of the Kit Kat

Our group will be presenting information about the environmental impacts of a Kit Kat candy bar. Our focus will be on the main ingredients, and how those ingredients affect our environment. This ingredient list is sugar, wheat flour, cocoa butter, nonfat milk, chocolate, refined palm kernel oil, and lactose (milk). We will be determining how much energy goes into the cultivation and transportation, as well as the waste produced by these processes. The cultivation research will show data about deforestation, herbicide resistance, and lack of biodiversity. The transportation research will show data regarding the greenhouse gas emissions. We will also provide research about the amount of waste produced, whether or not it decomposes, and its fate. Our goal is to look at the environmental impacts in the production of one Kit Kat bar. Using these data, and the information we get from our research, we will conduct a survey on Westfield State University’s Campus. We will reveal the numerical data in the production one Kit Kat bar, and ask whether it will change their purchasing habits regarding this product. We will also ask if they would purchase an environmentally friendly version if it was slightly more expensive and how much more they would be willing to pay for that environmentally sound product.

334  Auditorium 11:35-12:20 Board 43A
Bri Eichstaedt
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
An Analysis of the Vegetarian Ethos and Environmental Impacts

When a person becomes a vegetarian, what are they trying to accomplish? Are they trying to save the lives of animals, eat healthier, lose weight, or do they just dislike the taste of meat? In our research, we surveyed vegetarians and non-vegetarians to learn about their eating habits and ethics. We focused on three aspects: how many animals are saved each year by being a vegetarian; comparing carbon emissions between vegetarians and meat-eaters; and the utilization of grass-fed and organic meats. We used this information to estimate the pounds of meat the average meat eater consumes annually, the average amount of CO2 that is emitted annually due to eating meat, the consumption of organic meat, and the reasons for being a vegetarian.

335  Auditorium 11:35-12:20 Board 44A
Tony Davy
Will Mansfield
Bryan Garcia
Kathleen Maiolatesi (Faculty Sponsor)
Department of Environmental Studies, Holyoke Community College
The Public Transportation System

The Public Transportation System Bryan Garcia, Will Mansfield, Tony Davy ABSTRACT Western Massachusetts’ public transportation system has several problems, including an inefficient bus schedule, insufficient bus stops, low numbers of riders, and insufficient funding to produce a more sustainable transportation system. However, taking the bus has many environmental and economical benefits. This study was conducted to determine if changing fares, providing more transportation options, and switching to hybrids would be beneficial to the Pioneer Valley Transit Authority (PVTA). After researching the material through the Holyoke Community College library database, the local transportation annual finance reports, and the interviews with continuous riders, we found there are several areas in which the PVTA is losing money. Currently, fares do not cover the cost of providing bus transportation. The PVTA had approximately 10.2 million riders last year; a fare increase of just twenty-five cents would result in a 2.5 million dollar increase in funding. In addition to reducing the amount of gas used, riders contribute to a local business keeping money in the local economy. The PVTA could also benefit by spreading out the locations of bus stops or adding bus terminals where fewer buses could be used more efficiently. Finally, hybrid buses would save money spent on gas, and would produce fewer harmful emissions than traditional diesel buses. These proposed solutions show it is possible for our public transportation system to become a bigger part of people’s lives, helping them save money and the environment while contributing to the local economy.
Presenters
• Poster Sessions

336 Concourse 9:00-11:00 Board 70C
Rebecca Glennie
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Creation of a Low Maintenance, Low Impact Garden at Westfield State University

My poster presents the research I've carried out and implemented while working towards my goal of creating a low maintenance environmentally conscious garden at Westfield State University. To create this garden, I have been granted permission to revive old raised bed gardens on the Westfield State campus, located outside of the campus greenhouse. The gardens were donated to the school some time ago, and have fallen into disrepair in recent years. My goal is to research, using both books and online sources, types of plants that complement each other in order to optimize the life and longevity of the garden. The goal is to minimize maintenance and the use of resources (fertilizers, chemicals, water) while creating a beautiful long-lived garden. The plants required to realize this goal will be utilized from the campus greenhouse, or located and priced out working with a minimal budget. Native plants that naturally thrive in the New England climate will be the main focus of the project. Different theories on gardening and techniques for environmentally friendly gardening will be explored.

337 Auditorium 1:30-2:15 Board 9A
Nicholas Guidi
Deborah Picking (Faculty Sponsor)
Department of Environmental Studies, UMass Amherst
Do Vernal Pools Have Hydric Soils?

Vernal Pools are ephemeral wetlands which are seasonally flooded, providing an important habitat for the reproduction of frogs and salamanders during the spring. However, the hydrology of such wetlands has been relatively unstudied. One exemplary vernal pool in Montague, MA was chosen as the subject of hydrologic analysis throughout the growing season in 2012. Redox probes were used to determine the oxidation-reduction potential of soil at depths of 15, 30 and 45 cm below ground along the pool's cross-sectional shore (at summit, rim, and basin positions) to determine if the soil typically remained anaerobic at these depths. Monitoring wells were used to determine water table depth, allowing for cross reference to the reducing potential data. A set of nested piezometers was also installed at the rim of the pool to determine whether the pool exhibited discharging or recharging hydrology. Hydrology and redox data were collected every other week throughout the 2012 growing season. In late summer/early autumn, dominant vegetation were identified adjacent to the pool (at summit, rim, and basin positions) and classified according to their wetland indicator status. The summit of the pool remained unsaturated even during the wettest period of the season, remaining aerobic in the upper 30 cm of the soil, while the rim and basin soils exhibited conditions consistent with the definition of a hydric soil, exhibiting a period of saturation during a significant period of the growing season while developing anaerobic conditions in the upper 30 cm. Observed vegetation distribution patterns appeared to be consistent with the measured soil redox and hydrology.

338 Auditorium 11:35-12:20 Board 47A
Michael Jocelyn
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Cost- Benefit Analysis of Eliminating Plastic Water Bottles at Westfield State University

Plastic water bottles, while convenient, can have a detrimental impact on the environment and are a waste of natural and synthetic resources. We surveyed WSU students on their water drinking habits and how often single use bottles are reused, as well as their interest in exploring alternatives to single use bottles using water bottle filling stations. From the data collected in the survey, we determined the allocation of resources of buying and distributing bottles through a commercial vendor, and compared it to the price of installing and maintaining bottle filling stations. This would eliminate the need for single use bottles of water altogether. This cost comparison will be presented to the Student Government and administration to determine the possibility of having single use bottles banned on Westfield's campus, lessening our carbon footprint and doing our part to be conscientious global citizens.
339 Concourse 9:00-11:00 Board 68C
James Johnson
Brian Conz (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
The Biological Communities of the Belize’s Billy Barquedier National Park

The Billy Barquedier National Park, located in the northern region of Belize’s Stann Creek district, was established in December of 2001 for the protection of the Billy Barquedier watershed and to provide recreational and employment opportunities for residents of the local community. The park encompasses 1,500 acres of lowland broad-leaved moist forest with multiple distinct ecosystems within its confines. Examination, documentation, and mapping of these biological communities within the park are the objectives of this research. The spatial representation of the ecosystems is accomplished through field observations, consultation with local residents, and spatial data collection using handheld Global Positioning System (GPS) hardware. The resulting data are used in conjunction with ESRI’s ArcMap 10.1 geographic information system (GIS) software suite and other software applications to create both paper and web-based interpretative trail maps of the park’s ecosystems. Data sets, digital maps, documentation, and the interpretative trail guides will be utilized by the Steadfast Tourism and Conservation Association, a non-governmental organization (NGO) that co-manages the Billy Barquedier National Park with the Belizean government.

340 Auditorium 2:30-3:15 Board 21A
Matthew LaPete
Kathleen Maiolatesi (Faculty Sponsor)
Department of Environmental Studies, Holyoke Community College
The Path to a Brighter Future Without Nuclear Energy

Today’s world is driven by the pursuit of energy, but often mistakes are made in the name of advancement. The meltdown of the reactor Fukushima Daiichi on March 11, 2011 has shown that humanity may lack the knowledge to harness nuclear energy safely; therefore, until this awesome power can be truly stabilized, nuclear power production must be put on hold. Unfortunately, as other countries of the world begin to move away from nuclear energy in favor of more sustainable models, the United States continues extending licensing for nuclear plants past their intended design life. This project focuses on debunking the myth that nuclear energy is safe and affordable by analyzing how nuclear waste is stored, the disastrous potential our current situation presents, and the economics behind nuclear power generation. Plausible replacement solutions include increased energy efficiency programs, the implementation of wind farms both on and off shore, and further utilization of solar energy. My research demonstrates that a shift away from nuclear energy and the adoption of more sustainable methods is not only the rational decision in terms of safety, but in terms of economics as well.

341 Auditorium 11:35-12:20 Board 46A
John Murphy
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Human Waste and the Impact on the Environment

Our research evaluates the effects of human waste on our environment. With the global population reaching 7 billion people and steadily increasing, the disposal of human waste is an increasingly important issue. According to the Center For Disease Control, over 2.5 billion people, or 35% of the world’s population lack access to improved sanitation. In our poster we analyze the relationship between developed and underdeveloped countries based on their GDP, and what their waste disposal and treatment policies and procedures are. We also analyze new technology and procedures as well as provide recommendation for nations that have poor waste disposal and treatment policies. Our poster will also include a brief history of global sanitation and the improvements that have been made to the current day.

342 Auditorium 2:30-3:15 Board 23A
Samantha Ormond
Susan McPherson (Faculty Sponsor)
Department of English, Quinsigamond Community College
Solving the Global Water Crisis with Intentionality
Each and every day our valuable resource of water is squandered away, wasted, polluted, and lost into the atmosphere. Our global population is expanding, while our most necessary resource to sustain life is disappearing. How are human beings going to fix this problem? Masaru Emoto, a Japanese researcher, has begun to try and answer this question. His research focuses on the effect of intentionality and human thoughts in relation to water. Perhaps that power to solve the water crisis is within each of our minds and our hearts. Through my research I will explore water through a historical lens, water use in today’s world, and the possibilities related to intentionality and healing to help amend our water crisis. Is it all pseudoscience or could it become a helpful reality?

343 Auditorium 1:30-2:15 Board 12A
Zach Rogers
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Recycling Habits of Westfield State University Students

Recycling is overlooked by many, but is one of the most proactive actions an individual can make. Not only does it benefit the environment; it also creates job opportunities for many. In our presentation we present the results of our research on the recycling habits of students at Westfield State University. We designed and administered a survey to determine and highlight the habits of students. The survey distinguished whether the student is male or female, where they reside, what year they are, and his or her recycling habits. We will then compare and contrast the data collected to have an estimate of who recycles and how often. From this we can construct innovative ideas to rally students to start recycling or recycle more than they do currently.

344 Auditorium 11:35-12:20 Board 48A
Nathan Scuderi
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Estimation of Microplastics on Massachusetts Beaches

Microplastics in ocean ecosystems are of increasing concern. Recent research has shown that microplastics can also be found in beach sand. For this project, we quantified the amount of microplastics in sand at Ocean Beach CT. To determine the amount of microplastic, we immersed samples of beach sand in a saline solution, so the plastic floated. This was then collected and weighed, allowing us to determine the average amount of plastic in the sand. Once we determined the average density of plastic within the samples, we used this information to estimate how much total microplastic there was on the beach.

345 Auditorium 11:35-12:20 Board 42A
Katelin A Therrien
Nicholas A Armata
Alexandra Smialek
Michael Vorwerk (Faculty Sponsor)
Department of Environmental Studies, Westfield State University

We live in a society where the convenience of online shopping meets the demand for a greater variety of products not available in traditional shopping. However, what often goes unnoticed is the impact this relatively new service has on the physical environment. We are all aware of the impacts of consumerism on the world’s resources but does online shopping, also known as e-commerce, consume even more? Encouraged by the advancement of technology, online shopping is a growing industry that requires more and more resources to keep up with the increased demand. In this study, we will research the three main areas of impacts online shopping has on the environment: land use (warehousing); emissions created by delivery trucks; and materials needed to pack and distribute the purchases. In our presentation we will explain in-depth the impact that this industry has on the physical world. While the industry is continually growing, our study can suggest alternatives to lessen the environmental impact as these packages travel to our homes.
**346 Concourse 9:00-11:00 Board 69C**
Katelin Therrien  
Michael Vorwerk (Faculty Sponsor)  
Department of Environmental Studies, Westfield State University  
The Impact of Illegally Dumped Debris on the Westfield River

The Indian Hollow Campground on the East Branch of the Westfield River, Huntington MA, has recently been affected by illegal dumping of coarse woody debris (CWD). This includes tree branches, tree trunks, leaves, and wooded materials. Contractors working for the US Army Corps of Engineers likely dumped the materials in the river. I will determine the impacts of this illegal dumping on the Westfield River’s flow, aquatic life, and natural habitats. The aquatic ecosystem may have been compromised. However it is noted that in freshwater habitats where vegetation is low in abundance, coarse woody debris (CWD) can help aid fish by providing habitat and refuge for fresh water aquatic life. I will explore whether this illegally dumped debris benefits or harms the ecosystem. Through this project I will examine, document, and quantify the existing conditions using spatial analytic tools from ARC GIS.

**347 Auditorium 2:30-3:15 Board 22A**
Padrig Tuck  
Helen Poynton (Faculty Sponsor)  
Department of Environmental Studies, UMass Boston  
The mechanisms of microevolution in the pollutant exposed amphipod Hyallela Azteca.

I am focusing my work on the rapid evolution (microevolution) of Hyallela azteca specifically due to environmental pressures that have been placed upon the species. Certain populations and sub-populations of H. azteca have developed a resistance to a class of pesticides known as pyrethroids that target the insect’s voltage-gated sodium channel (VGSC) causing it to seizure and ultimately die. The resistance comes from a single nucleotide polymorphism (SNP) in the sodium channel which has prompted us to develop an assay that can screen for the SNP in multiple populations to assess the prevalence of the mutation. The populations being screened are geographically isolated from one another, implying that each population has developed this mutation separately, which is a strong indication of micro-evolution in the face of an environmental hazard. Pyrethroid resistance in collected populations will be assessed phenotypically through 96-h toxicity bioassays with cyfluthrin as a model pyrethroid, and genetically using TaqMan qPCR which will specifically detect the presence or absence of the two single nucleotide mutations in vgsc that result in M918L or L925I substitutions. These assays have been developed through Life Technologies custom TaqMan Assay Design Tool, and is currently being assessed as a valid method of screening in validation in our laboratory. This work will provide a fast assay for the presence of resistance alleles allowing investigators to quickly screen both laboratory and field populations of Hyalella azteca for pesticide resistance.

**348 Auditorium 1:30-2:15 Board 11A**
Toni Uliana  
Michael Vorwerk (Faculty Sponsor)  
Department of Environmental Studies, Westfield State University  
Analysis of Recycling Rates and Awareness between Majors at Westfield State University

This year’s Recyclemania has begun at Westfield State University, which encourages recycling and recycling awareness among the students. Many activities and competitions are held in which students or groups of students who recycle the most products can win a prize. This is important because it can teach the students to recycle, and keep our economy from continuing the production of non-renewable and toxic substances by recycling substances that already exist. Our group will determine how much is actually recycled on each floor of Wilson Hall at WSU before and after we post signs telling students where they can appropriately recycle their waste. We also assume that the Environmental Science department will have the least amount of recycling in their trash compared to other majors, because their entire education revolves around protecting and preserving the environment. We will accomplish this goal by going into each classroom on each floor daily for two weeks and counting the amount of recycling in the trash cans. We will then add signs above each trash can that explain where students can recycle their waste and repeat the analysis for another two week period.
349 Auditorium 1:30-2:15 Board 10A
Maclane Walsh
David Kalivas (Faculty Sponsor)
Department of History, Middlesex Community College
A Study of the Sustainability of Fracking

Fracking is a controversial method of extracting natural gas and has been receiving a lot of public attention for a few years now. Starting in 2010 with Gasland, a documentary film about the dangers of fracking, to the more recent feature film, Promise Land, fracking has begun to be scrutinized for its impact on the environment. The purpose of my presentation is to examine the many inquires of whether fracking is an environmentally sustainable and appropriate method for natural gas extraction, or not. By studying the results of researchers, evaluating the stories of journalists, and reviewing films like Gasland, I came to realize the need to engage in research on the process and environmental controversy surrounding fracking. My research will report on what the evidence indicates about fracking as a solution to our natural gas needs and the challenges it may present to issues of environmental degradation.

350 Concourse 9:00-11:00 Board 65C
Awernik Wernik
David Christensen (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Ecological Study of Kinne Brook Prior to Stroud Dam Removal

Kinne Brook is a branch of the Westfield River located in Chester, MA. It is part of a dendritic river system and classified as a 2nd order brook. Kinne Brook's habitat has been altered by the placement of a small dam. The dam has been scheduled to be removed in the year 2013. The goal of this project was to reestablish stream connectivity and improve habitat for brook trout, Salvelinus fontinalis and Atlantic salmon, Salmo salar. The removal of the dam should improve the water quality, restore natural flow and stream processes, and reconnect the fragmented stream and riparian systems. In particular, this project served as a preliminary assessment of the morphological, chemical and biological properties of the stream before dam removal. The assessment will be repeated post dam removal to evaluate restoration success. The collective effort of small dam removal projects like this will help reconnect stream networks in Massachusetts and improve brook trout and Atlantic salmon habitat.

351 Concourse 9:00-11:00 Board 67C
Daniel Wright
John McDonald (Faculty Sponsor)
Department of Environmental Studies, Westfield State University
Expanding Search of New England Cottontail through GIS

The New England Cottontail (NEC) has declined dramatically over the past several decades. Due to this fact professor McDonald and I have assisted in the efforts of the Massachusetts Division of Fish and Wildlife to help identify potential habitat areas for the NEC. Due to a decline in habitat for the NEC and the expansion of the Eastern Cottontail, the range of the NEC in Massachusetts is shown to be steadily declining by available data. Currently the range of the NEC occurs from eastern MA, RI, eastern and western CT, southern ME, eastern NY, and a bit in western MA. Our goal is to help identify potential locations of the New England Cottontail throughout central MA by using GIS analysis of logging data including size, type, and year of cutting along with the proximity of those cuts to other suitable locations. We will use this map to identify field sites to visit and collect pellet samples for DNA analysis of rabbit species, which will document the presence of the NEC if positive. The resulting data from those pellets will help to determine the effectiveness of my site assessment map and in turn assist in guiding habitat management efforts for the New England Cottontail.
**FINANCE**

352 Auditorium 1:30-2:15 Board 8A  
Jamila Gilliam  
Kiran Verma (Faculty Sponsor)  
Department of Accounting, UMass Boston  
The U.S. Bailout Bonanza: The Good, the Bad, the Ugly

During the height of the financial crisis, the United States Government made an effort to prevent a large number of its financial institutions from ultimately going bankrupt. The Emergency Economic Stabilization Act was put in place which enabled the Federal Government to secure troubled assets and to allocate over $700 billion in bailout funds across the United States. Bailout recipients (totaling 735) included banks and other financial institutions ranging from the largest to smallest in the nation. The purpose of my study is twofold. In the first part, I document how the bailout monies were distributed – which financial institutions received the largest amounts of bailout monies and in what states were they located? How did the New England region fare and within New England what states were the largest beneficiaries? In the second part, I examine how the financial firms which received the largest amounts of bailout funds have performed post financial crisis (after receiving the bailout funds). Have their equity prices recovered after the financial crisis and have they become profitable operations? In this context I also examine if the bailout funds have had an influence on the profitability of the firms. Based on literature review I expect that there is a correlation that shows that firms with the lowest equity prices, Return on Asset ratios and/or Return on Equity ratios; were the ones that received the largest amounts of bailout funds during the financial crisis.

353 Auditorium 1:30-2:15 Board 7A  
Karol Pawlowski  
Jay Mahoney (Faculty Sponsor)  
Department of Management, Worcester State University  
MoneySKILL Financial Literacy

The annual Financial Literacy Survey of adults* revealed that two in five U.S. adults gave themselves a C, D, or F on their knowledge of personal finance; 56% do not have a budget; One-third, or more than 77 million Americans, do not pay all of their bills on time; 39% carry credit card debt over from month to month. Financial literacy for young adults is critical for their long-term success. Early debt can severely limit career, educational and personal options. Both public and private schools are faced with severe financial constraints making the introduction of new programs or services economically challenging. We provided a no-cost solution to the pressing issue of financial literacy. MoneySKILL** is a free online to help student develop their financial understanding. The program content covers income, expenses, savings and investing, credit and insurance. Designed to be used stand-alone or incorporated into a course in economics, math or other courses where personal finances may be taught, educators have flexibility in designing their curriculum. The Enactus team partnered with 2 high schools and a college ESL program to introduce financial literacy. We developed programs to teach teachers how to access and employ MoneySKILL and will directly teach participants in the ESL program. We developed a set of age/site appropriate pre- and post- test to assess student’s financial literacy. These will be administered to allow us to track the efficacy of the program. *2012 National Foundation for Credit Counseling and Network Branded Prepaid Card Association ** AFSA Educational Foundation

**GEOGRAPHY**

354 Concourse 9:00-11:00 Board 59C  
Nicholas Armata  
Carsten Braun (Faculty Sponsor)  
Department of Geography, Westfield State University  
LEGO Brand Retail Store Expansion in the New York City Tri-State Area

In a market and consumer-driven economy, retail stores remain an important component of brand recognition and company profit. For retail, the old adage remains as true as ever: location, location, location! Here we present a Geographic Information Systems (GIS) – based analysis of existing and potential future retail location for the globally-recognized brand LEGO® in the New York City Tri-State Area (New York City and proximal parts of New Jersey, New
York, and Connecticut). The locations of existing retail stores were geocoded together with their relevant attribute data and characteristics to create a series of maps depicting their current distribution. We then assessed potential locations of new LEGO® retail stores with the goal of conserving the attendance and revenue of all existing and surrounding stores in the regions. Factors and selection criteria in our analysis included population size and demographics using 2010 Census and American Community Survey data, target audience demographics, demand points, and supply locations. We also performed a transportation analysis to evaluate drive times and distances to current and potential future retail locations using the ArcGIS Network Analyst extension. Our completed analysis suggests a series of four potential new retail locations for LEGO® that meet the site selection criteria to accommodate intelligent growth. That criterion ranks our candidate mapped locations using a number of variables taken from real-world data used by The LEGO® group. The variables include, regional population density, the percentage of the population that are LEGO® Group's target aged audience, proximity to existing locations, and retail costs.

355  Concourse 9:00-11:00 Board 60C
Nicole Giles
Carsten Braun (Faculty Sponsor)
Department of Geography, Westfield State University
Westfield State University WebGIS: A Student Led Project Serving the Campus.

Online maps are increasingly important tools in an ever changing world of technology for universities to promote their trademark and to attract students. Campus visitors, Facilities and Operations, Public Safety, and emergency responders benefit from up-to-date dynamic infrastructure maps accessible anytime on any device using an Internet browser. The Westfield State University Web GIS is a comprehensive student-led effort developed using the web-based ArcGIS Online for Organization platform by Esri. Phase 1 of this project included conducting stakeholder surveys and data collection, followed by data analysis, online mapping, and the development of a prototype Web GIS as Phase 2. • Current and prospective students can now take interactive 3D virtual tours of the campus and surrounding areas to find the location of food services, hiking trails and much more. • Campus visitors now have access to up-to-date information about events, parking, and campus resources. • Facilities and Operations staff can easily locate, maintain, and inventory campus using basic tablet computers or smart phones. • Emergency responders will be able to evaluate building safety buffers, locations of hazardous materials, building exits and characteristics before arriving on-scene. Facilities and Operations and Public Safety staff in Spring 2013 (Phase 3) will assess the effectiveness of the prototype Web GIS and is anticipated to result in the development of additional data sets, interactive map services, and online maps for a variety of audiences on and off campus. The official launch of the Westfield State University Web GIS is planned for April 2013.

356  Auditorium 1:30-2:15 Board 31A
Lindsay Rogers
Stephen Young (Faculty Sponsor)
Department of Geography, Salem State University
Impacts of Storm Surge and Sea Level Rise in Salem, Ma

The goal of this research is to identify how vulnerable Salem is to flooding from both long-term sea-level rise and impending storm events. Using geospatial technologies we analyzed which areas would experience flooding due to a combination of sea-level rise and storm surges at increments of 1 foot, 4 feet, 7 feet, and 10 feet. With documented increases in sea level and projected increases along with more frequent storm activity, Massachusetts is increasingly vulnerable to flooding. We wanted to model what would happen to Salem in the future with a higher sea level and storm activity. We created a map of at-risk flood zones in Salem by using ArcGIS explorer. To create this map we used a FEMA flood map combined with data layers from Mass GIS. Also we created four different maps showing the areas in Salem which would be submerged during 1, 4, 7, and 10-foot storm surges. We created the four images by using the “Surging Seas” sea level analysis simulator at http://climatecentral.org. The data for these maps were provided by NOAA, the U.S. Fish and Wildlife Services, and MapQuest. This research was assisted by John Kaetzer, Matt Catalini, Paul Mcburney, Seth Perry, and Ian Canty from Salem State University.
Presenters

Jennifer Titus
Stephen Young (Faculty Sponsor)
Department of Geography, Salem State University
Storm Surge Flood Risk Assessment in Boston, Massachusetts

Continuing Global Climate Change is evidenced in rising sea levels and storm surge rates. As the event of “100-year-storms” or large storms that have in history occurred approximately every one hundred years, increases, coastal land is extremely vulnerable to flooding. As the Earth warms, water expands and large areas of ice continue to melt. These occurrences result in rising sea levels. Sea level is currently projected to rise between ten inches and two feet by the year 2100. Rising sea levels coupled with large storms are resulting in high storm surge rates. Higher storm surges result in an increase of flooded land area. Boston, Massachusetts, a coastal city in the Northeastern United States that borders the Atlantic Ocean, is vulnerable to storm surge flooding. Sea level rise and storm surge flooding will have consequential effects on city infrastructure and will leave many humans without shelter. The objective of this research poster is to display the flood effect of a “One-hundred-year-storm” in Boston, Massachusetts. Flood risk assessment is crucial in managing both the movement of people in the event of large storms and the land use planning of flood vulnerable areas. Aerial imagery and LiDAR derived Digital Elevation Models from the MassGIS database will be analyzed and manipulated using the Idrisi and ERmapper software programs.

GEOLOGY

Karl Grette
Michele Cooke (Faculty Sponsor)
Department of Geology, UMass Amherst
Thrust Faults accommodate strain within the Eastern California Shear Zone

The Eastern California Shear Zone in southern California is an area of high tectonic complexity where a lot of faults interact closely with one another. The Community Fault Model, a numerical model using Boundary Element code, is a model that attempts to understand how slip is distributed across the region. However, there are significant disparities between the predicted rates in the model and measured geologic slip rates from the field, which is due to differences between our understanding of the fault interactions and geometry and the actual fault system. I have attempted to improve the model by adding three recently mapped thrust faults which previously were not included in the model. These faults reduce off-fault deformation predicted by the model and provide slip rates that are closer to the geologic slip rates measured in the field.

Ayla Heinze Fry
Michele Cooke (Faculty Sponsor)
Department of Geology, UMass Amherst
Investigation of Hurricane Irene’s Reactivation of a Rotational Landslide along Route 2, in Charlemont, MA

In late August 2011, a rotational slide destroyed highway route 2 in Charlemont, MA. The slide, which had previously slipped in 1938, was reactivated by extensive rainfall (~6”) from hurricane Irene. Hurricane conditions also caused the 1938 slide. We investigate the conditions causing the reactivation of the slide in 2011 using numerical models based on subsurface soil characterization. The MA Department of Transportation characterized borehole samples in the 1970’s and again in Fall of 2011. Along with these logs, we collected and analyzed soil samples for current characteristics, such as grain size, water content, density and Atterburg Limits. We develop a three-dimensional representative model of the subsurface that incorporates local topography and the topology of subsurface layers, from borehole information. A composite two-dimensional cross-section will be constructed from the complete 3D model, and imported to ComSol. The ComSol model will incorporate the properties of the subsurface soils and simulate the hurricane conditions. We will vary the unconstrained soil properties and layer configurations in order to best match the observed Hurricane Irene rotational landslide along Route 2 in Charlemont.
360 Auditorium 9:00-11:00 Board 35A
Emily Levin
Laurie Brown (Faculty Sponsor)
Department of Geology, UMass Amherst
Using Magnetic Properties to Distinguish Lava Flows in Springerville Volcanic Field, Arizona

The Springerville Volcanic Field (SVF), located in east-central Arizona, is comprised of over 450 volcanic vents, mostly cinder cones, which have been mapped and studied for many years. These vents produced basaltic lava flows with ages ranging from 2.1 to 0.3 Ma. Although the samples from the Springerville field undergo petrological and geochemical tests, this information is not distinctive for different flows. Magnetic susceptibility, a measurement of a rock’s response to an external magnetic field, paired with magnetic polarity data, seems to be a possible missing link in distinguishing flows. In the field, the samples are collected at separate sites with five to eight individual cores per site. Site average susceptibility values range from $7.24 \times 10^{-3}$ to $4.24 \times 10^{-2}$ (SI system unit less). Magnetic susceptibility measurements can possibly narrow the options for sites that may be from the same flow or related flows. After using the magnetic susceptibility values to make some preliminary speculations about which sites were associated, the site’s polarity (normal or reversed) made it even clearer which sites could be assumed to be from the same flow. Combining this information with the field mapping results provides multiple tools for flow correlation. A SVF example includes comparing sites AZ 214, AZ 215, and AZ 216, which have average susceptibilities within 0.005 of each other and have consistent polarities. Results of my research indicate that unique magnetic susceptibility values can be used to distinguish between different volcanic flows that may be difficult to identify otherwise.

HISTORY

361 Auditorium 2:30-3:15 Board 28A
Patrick Collins
Mara Dodge (Faculty Sponsor)
Department of History, Westfield State University
Fixing the Student Debt Crisis

Student Debt is becoming a larger and larger threat to the success of America. Using journal articles, investigative reports, various case studies, and raw economic data, this study explores the history of legislation that supported Higher Education over the mid 20th century. The study examines how such funding has diminished in the past two decades and attempts to offer a reasonable and coherent solution that would begin to mend the issue. The main source of the problem is the reduction in federal income taxes that started with the Reagan administration and has continued until today along with a lack of assets allotted to public higher education on the state level. The success of earlier government programs toward such funding (such as the G.I. Bill, the Pell Grant Program, and the Higher Education Act) allowed previous generations of young Americans to obtain very affordable college educations. In contrast, the reforms of recent administrations have benefitted the wealthy rather than the commoner. In order to restore reasonably priced tuition and college expenses, our current federal and state governments must act to either restore funding to these institutions and implement a more equitable program for student loan repayment. By making college more accessible, millions of young Americans would be able to obtain what should be a right of every citizen of the nation: a college degree.

362 Auditorium 1:30-2:15 Board 39A
Ashley DeVlaminck
Sara Levine (Faculty Sponsor)
Department of Psychology, Fitchburg State University
The Central “Interference” Agency: US Foreign Policy in Guatemala

This project seeks to investigate what the US was doing in Latin America during the 20th century, specifically Guatemala and the US program to destabilize the Guatemalan government during the 1950s. What is clear is that the priorities were American, not Guatemalan. The 1954 Coup that ousted Jacob Arbenz as president was only the beginning. For nearly 4 decades following the coup, the U.S. supplied Guatemala’s politically repressive regimes with training, equipment, and financing. By 1996, nearly 200,000 people had been killed by the post-coup regimes. For an operation that was named PBSUCCESS, this doesn’t seem like success. Yet by American standards it was success. Why
is that? It goes back to what the U.S. was doing there in the first place. This project aims to show that it is unlikely that the Guatemalan government would have been overthrown, at least in 1954, without the involvement of the US, that US involvement in Guatemalan affairs had a long term, negative impact, and that tactics used by the CIA put into question the ethics of U.S. foreign policy and the foundation that the agency was built upon.

363 Auditorium 2:30-3:15 Board 26A
Ibrahim Diarra
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
The genocide in Rwanda: Was the scenario already written?

The genocide in Rwanda is a contemporary example of mass murder. Between April and July 1994, at least 800,000 members of Rwanda’s minority Tutsi group were brutally murdered by the majority Hutus. Before colonization, there were no conflicts between the two ‘tribes’. Colonialist and their manipulative strategy divided them and destroyed the peaceful Rwandan culture. This paper will aim to determine whether or not this case of mass killing was a result of the ‘divide and rule’ politic that colonists used in Rwanda. Using journal articles, and non-governmental organizations’ reports, historical and political causes of the genocide, before, during, and after colonization will be identified. Demonstrating the direct impact of colonization on the genocide in Rwanda will help clearing misinterpretations of this tragic event.

364 Auditorium 2:30-3:15 Board 27A
Katherine Gallagher
James Grady (Faculty Sponsor)
Department of English, Bristol Community College
Jewish resistance and The Bielski Brothers during the Shoah

As the Third Reich ruthlessly executed millions of Jews across Europe many different forms of resistance emerged. One of the most famous groups of resistance fighters are the three Bielski brothers and their famous Otriad. The Otriad consisted of around 1,200 people at the end of the war, all of whom were living in a secret community in the woods of Poland. Using a variety of sources from scholarly libraries as well as the testimonies of survivors, this project reveals an aspect of brave opposition and triumph during a time of despair. It discusses the impact this particular resistance group had on the war and how effective their methods were at disrupting Nazi efforts. It is necessary to provide some context within the range of the Jewish Resistance in order to emphasis the magnitude of the Bielski Brothers accomplishments.

365 Auditorium 1:30-2:15 Board 40A
Alison Gowen
Mara Dodge (Faculty Sponsor)
Department of History, Westfield State University
Pope Pius XII and the Holocaust

My research examines the role Pope Pius XII played in the Holocaust. This is a hotly debated topic and a plethora of material has been written. Understanding Pius's role in the Holocaust is essential because the Catholic Church has considered making Pius a saint. My research addresses the Pope’s actions during this period through an analysis of four books: A Cross Too Heavy to Bear by Paul O’Shea, Hitler’s Pope by John Cornwell, Pius XII and the Third Reich by Saul Friedlander, and The Vatican in the Age of the Dictators by Anthony Rhodes. These range in date from 1966 to 2011 and clearly reflect the changing scholarly interpretations about Pius’ actions. I conclude that O’Shea and Rhodes both provide a balanced and persuasive argument. In contrast, Friedlander and Cornwell present a one-sided indictment of the former pope which distorts the historical record. Based on my evaluation of the sources, I conclude that although Pius XII did not support the Holocaust or the Nazis, he also did not speak out against them strongly enough. His reasoning for not speaking out publically was that it would do more harm than good. I believe that Pius genuinely felt that he was doing everything in his power to help the victims. That does not, however, excuse him for not actively condemning the Holocaust at the time. Thus, I argue, Pope Pius XII should not be made a saint.
Presenters • Poster Sessions

366 Auditorium 2:30-3:15 Board 25A
Devon Schneider
David Kalivas (Faculty Sponsor)
Department of History, Middlesex Community College
Out of Many: The Shift from Polytheism to Monotheism in Ancient Israel

The three major religious traditions - Judaism, Christianity and Islam - are anchored by a monotheistic belief system. The development of monotheism, the belief in “the only God,” was a pivotal epoch in early human history that represented a significant historical change away from the norm of polytheistic religious beliefs. How did this new way of thinking and believing emerge? When considering the vast span of time from human origins to the first civilizations, it has only been been approximately the last 3,000 years that cultures developed the idea of only one God as the prevailing religious practice. Therefore, this research examines the development of monotheism in ancient Israel, and the impact of concurrent cultural influences that may have affected this development, as well as possibilities of connections with the proto-monotheism of ancient Egypt.

367 Auditorium 2:30-3:15 Board 24A
Alexander Yaksic
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
Change Through the Ages: A Cyclical Philosophy of History

At the core of this project is the assertion and defense of a cyclical philosophy of history. A new model was devised to explain the changes that transpired during several of the most significant periods of modern history and, by extension, to explain and contextualize all historical change. Research elucidated that the driving force of historical change is a cyclical process whereby social instability causes political change, which precipitates ideological changes, in turn causing socio-economic changes. This cycle is perpetuated by instability caused by social inequalities. Societies in which an empowered minority is privy to better quality of life than the majority are unstable, and the cycle will advance until a stable society (one in which the majority are afforded a better life than the minority) results. Indeed, if the overall changes are negative for the majority of a given society subject to them stability has not been achieved and the cycle repeats, with the (negative) socio-economic changes being the driving force for further political change. Conversely, if greater stability results from the cycle – if the changes produced by the cycle are, altogether, positive for the majority of people subject to these changes – the predictable cycle (and the scope of this research) ends and an alternative analysis is necessary. Three case studies were selected, analysis of which provided evidentiary support for this cyclical philosophy: the rise and fall of the Union of Soviet Socialist Republics; France from the French Revolution through the rise and fall of the Jacobins and the establishing of the Napoleon’s First French Empire; and England from the Civil Wars through the Glorious Revolution. These selections have been analyzed in innumerable previous works; however, the aim of this project is original, with the historiographical model asserted herein adding nuance to our understanding of the causes and effects of the periods studied and affording insight into changes occurring even today and historical change as a whole. As the events analyzed were catalyzed by revolution, a common genesis of revolution was identified as the social instability that precedes the start of the cycle. The limitations of this philosophy are glaring: as soon as the cycle is broken, an alternative historiographical model is necessary that exceeds the purview of this research.

INTERDISCIPLINARY STUDIES/BDIC

369 Auditorium 1:30-2:15 Board 28A
Hadi Ahmed
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
The Construction of Meaning by Examining the OBEY Giant Sticker Campaign

Shepard Fairey is a controversial street artist who started the OBEY sticker campaign as an experiment in Phenomenology. Fairey created the OBEY Giant symbol to stimulate curiosity in people about the symbol and their association with their environment. Along with Fairey’s primarily endowed meaning, the symbol created its own meaning through the eyes of each of its viewers. This research explains the history of the OBEY Giant symbol and more importantly it tells us how meaning is constructed. By investigating authorial intent, or Fairey’s intention in creating the
symbol, we see how important the initial purpose is in the construction of meaning. By interviewing people about the meaning of the symbol, we will get a general understanding of how meaning is constructed, specifically around the OBEY Giant symbol. A cultural criticism of how the interviewee’s personality induces certain feelings toward the symbol can unlock some answers as to how we construct significant meaning from absolutely nothing.

370 Auditorium 1:30-2:15 Board 30A
Whitney Ceesay
James Grady (Faculty Sponsor)
Department of English, Bristol Community College
Increasing Access to Food during Shortages and Reducing Waste of Surplus During Harvest in Gambia, Africa

The people of The Gambia, Africa are struggling for access to food during shortages and are unable to preserve their surplus from market or harvest; consequently, they are forced to waste what they desperately need later. With an abundance of potential solar energy, a solar food dehydrator could potentially afford the owner the ability to supply their families with consistently adequate nutrition while providing them with a possible source of income. Dried ingredients are more valuable in these conditions than raw as they will not spoil. By determining the opportunities and challenges in creating a non-profit organization, being able to share this idea on the ground could truly benefit the people. This process will be explored through the creation of a business plan that will describe the current situation in Africa, a plan for remediation (including estimated costs), challenges that may be faced (cultural, governmental, logistical, etc), and procedures for organizing as a 501(c)(3) charity in the United States. These questions will be answered by looking at similar organizations, governmental agencies, and visiting the Academic Center for Entrepreneurship (ACE) at Bristol Community College. The business plan will also be accompanied by a visual representation of the solar food dehydrator that will aid in increasing sustainability and adequate nutrition while providing a source of income.

371 Auditorium 1:30-2:15 Board 29A
Jose Ortiz
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Joseph: Divine Dreamer of God, the Conscious, or Historical Myth

The Old Testament is full of cases where the human psyche seems to intricately weave with the natural and supernatural realms of the universe. In which, man is the mouthpiece for the monotheistic God of the chosen people of Israel. He delivers messages of events yet to pass because of His omniscience through dreams, visions, and divine encounters. In Freud’s essays, comprised in his book Moses and Monotheism, he discusses his argument as to why Moses would have written such accounts. He also explains further in Totem and Taboo, why people want to have ties to an afterlife or the supernatural. This research is a gateway into identifying the validity or ideals of precognitive dreaming and whether it has prevented catastrophic events like those in the Bible. I will examine works from Old Testament writings, Freud’s work and other psychologists and scientists to explain if it is possible to have precognitive dreams and if they still occur in the 21st Century.

KINESIOLOGY

372 Concourse 3:30-4:15 Board 48A
Alexander Borges
Patty Freedson (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Validation of a Consumer Activity Monitor in Estimating Physical Activity Energy Expenditure

Activity monitors for consumers have increased in popularity in recent years. However, little is known about their accuracy in estimating physical activity energy expenditure (EE) and steps. Therefore, the purpose of this study was to evaluate the accuracy of the Nike+ Fuelband (NFB) wearable monitor in estimating EE and steps. Criterion EE (Oxycon Mobile [OM]) and steps (StepWatch [SW]) were measured in ten college-aged students (mean ± SD, age = 21.5 ± 2.8 years; BMI = 23.9 ± 2.6 kg/m²). The NFB bracelet was worn on the dominant wrist. Participants performed a routine consisting of four walking/jogging activities, each performed for 6 minutes: treadmill (TM) 1.5 mph at 0% grade, TM
3.0 mph at 0% grade, TM 6.0 mph at 0% grade, and a self-paced walk. There were significant differences observed between the NFB and the OM in EE for TM 1.5 mph (average underestimation of 40.7%) and TM 6.0 mph (average overestimation of 18.8%). There were significant differences observed between the NFB and the SW in steps for TM 1.5 mph (average underestimation of 86.9%), TM 3.0 mph (average underestimation of 5.3%), and self-paced walk (average underestimation of 13.8%). The significance of these findings are that NFB users who are jogging for weight loss may struggle to meet their goals as the inaccurate kcal output may lead them to believe they are expending more energy than they actually are. In addition, underestimating steps may inhibit users from reaching their step goals, thus discouraging them from future exercise.

373 Concourse 3:30-4:15 Board 52C
Mary Chaput
Richard Van Emmerik (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Effect of a Three Week Tai Chi Intervention on Postural Stability in People with Multiple Sclerosis

A devastating effect of Multiple Sclerosis (MS) is the impairment of balance that leads to mobility loss. In quiet stance, people with MS display greater amounts of postural sway during internal perturbation tasks than healthy controls. Tai Chi has improved balance in elderly populations, and the purpose of this study was to determine if a three-week Tai Chi intervention would increase postural stability in individuals with mild to moderate MS. Seven adults (6F/1M) attended nine one-hour Tai Chi training sessions. Postural stability was assessed during three standing tasks: quiet stance, Tai Chi standing meditation without Tai Chi arm movements, and Tai Chi standing meditation with Tai Chi arm movements. Foot center of pressure (COP) range, excursion, velocity, and time to contact (TtC) stability boundary measures were used to assess postural stability before and after the intervention. Lower body strength obtained from a chair raise test and neural drive obtained from a toe tapping test were also assessed. Paired t-tests (p<0.05) indicated that during standing meditation with arm movement tasks, participants showed a significant decrease post intervention for average TtC (p = .012) and minimum TtC (p = .012) for anteroposterior COP movement, and an increase in overall COP velocity (p = .006) and excursion (p = .023). Neural drive and strength also increased post intervention. Quiet stance and standing meditation without arm movement tasks showed no change. Reduced TtC suggests that postural stability during standing meditation with arm movements improved due to the intervention. Strength and neural drive increases may have contributed to this improvement in stability.

374 Concourse 3:30-4:15 Board 53C
Steven Czerniejewski
Teresa Fitts (Faculty Sponsor)
Department of Kinesiology, Westfield State University
The Case of Vera: Modifications for Low Back Pain and Strategies for Relapse Prevention

The purpose of this Case Study was to compare fitness assessment data and programming from two training programs developed for Vera in 2009 and 2012. Included were strategies for relapse prevention and program modifications for chronic low back pain as a result of an acute injury. According to the Center for Disease Control 28.5 % of American adults suffer from chronic low back pain. Strength training has been found to alleviate chronic low back pain by correcting muscular imbalances and motor unit recruitment in core stability muscles. Jackson et al. (2011) found periodized resistance training is effective at relieving low back pain. A cardiorespiratory fitness program was also implemented to maintain cardiovascular health, quality of life, and promote weight loss. The client participated in a community fitness partners program in which students were paired with members of the university community. A full fitness assessment and health appraisal was conducted prior to the development of her program. In addition to comparing assessment data from 2009, this Case portrays the client’s functional ability due to inhibited movements as a result of low back pain in 2012. After the initial program was implemented, modifications were suggested to allow Vera to perform exercises with proper form and increased range of motion. This Case provides an example of how gains in muscular strength and cardiovascular endurance could be obtained through evidence-based practice.

375 Concourse 3:30-4:15 Board 49C
Eric DiBiasio-White
Joe Hamill (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Dynamics and EMG of the Forefoot Footfall Pattern When Running Shod and Barefoot
There has been a great deal of research done on rearfoot (RF) and forefoot (FF) footfall patterns during running, to determine the kinematic and kinetic differences between them. There has been a movement towards the barefoot running but that does not mean it is the best for your body from a biomechanical standpoint. There are different muscles that are activated when running with a RF or FF pattern possibly causing more stress on the runner. This stress may be produced by the different joint geometry when striking forefoot or rearfoot. For this study, a motion capture system and a wireless EMG system will be used to record the kinematics and muscle activity during running with a RF pattern, a FF pattern shod and a FF pattern barefoot. Participants will have reflective markers placed at the hip, knee and ankle joints to determine the joint angles when the participant runs over the force plate. Participants will also have wireless EMG electrodes placed over five lower extremity muscles (gastrocnemius, soleus, anterior tibialis, vastus lateralis and biceps femoris). We found that certain muscles had greater activity depending on whether the subject was RF striking or FF striking with the gastrocnemius and soleus having almost two times the magnitude when running with a FF pattern versus the RF pattern. The results of this study are important because the results illustrate that there is a significant alteration in muscle activations patterns when running with different footfall patterns.

376 Concourse 3:30-4:15 Board 51C
Julie Lalonde
Stephen Foulis (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Effect of Old Age on Neuromuscular Properties across a Range of Velocities

Human skeletal muscles become weaker as age increases beyond about sixty years. The loss of strength observed in older adults is caused in part by the loss in muscle mass. A loss of strength can lead to a decline in function. Skeletal muscle may be susceptible to weakness at high contraction speeds, in particular. The purpose of this study is to characterize the neuromuscular changes that occur with increasing speed in young and older adults. Twenty-four, non-smoking women, who participate in less than one hour of structured exercise per week will be recruited for the study. Strength data will be collected for twelve younger women (age: 25-40 years) and twelve older women (65-85 years). A Biodex System 3 Dynamometer will be used to measure muscle strength ten different speeds, each ranging from 30 to 300 deg/s. Electromyography (EMG) will be used to measure the muscle's electrical activity during each contraction. Variables will include peak torque (Nm), peak power (W), time to target velocity (s), and rate of neuromuscular activation (% max EMG/s). Our preliminary results (7 young, 5 older) have shown that across a range of velocities, the older women have lower peak torques and powers (p<0.01), but similar time to target velocities (p=0.34). As velocity increases, peak torque and power decrease, while time to target velocity increases (p<0.01). These results will provide important information about the changes that occur in muscle function in old age, and may be useful in developing interventions designed to prevent disability.

377 Concourse 3:30-4:15 Board 50C
Ian McDonald
Stephen Foulis (Faculty Sponsor)
Department of Kinesiology, UMass Amherst
Neuromuscular Contractile Characteristics in Persons with Multiple Sclerosis

Multiple sclerosis (MS) is a disease in which the body’s own immune system attacks and destroys the myelin sheath surrounding the axons of nerve cells in the brain and spinal cord. Demyelination disrupts the action potential along the axon of motor neurons, resulting in muscle weakness and ultimately, deficiencies in physical function. The aim of this study is to identify differences in the characteristics of the knee extensor muscles during dynamic muscle contractions in individuals with MS compared with healthy individuals. We studied 14 individuals with MS and 14 age- and activity-matched healthy individuals. A dynamometer was used to measure torque production by each subject at a range of velocities between 30 and 300°•s⁻¹, at 30°•s⁻¹ increments. A custom computer program will be used to determine for each velocity the peak torque (Nm), peak power (W), and time to target velocity (s). The results of this analysis show persons with MS have lower peak torque at slower velocities (30-120°•s⁻¹, p<0.05) and lower power across all velocities (p=0.03) than healthy individuals. There is also a trend (p=0.08) for persons with MS to have a slower time to target velocity. These results show that impairments in muscle power may be due, in part, to impairments in generating velocity. This may provide a potential target for future interventions to prevent declines in physical function in persons with MS.
**Presenters • Poster Sessions**

**378 Concourse 3:30-4:15 Board 54C**

Stefani Pagoulatos  
Stephanie Jones (Faculty Sponsor)  
Department of Kinesiology, UMass Amherst  
The Effects of Prolonged Walking on Standing Postural Control in People with Multiple Sclerosis

PURPOSE: People with Multiple Sclerosis (MS) often report balance dysfunction that may contribute to the apparent increased fall risk (51% will fall per year) demonstrated by this population. Greater than two thirds of people with MS also report symptomatic fatigue. Balance function and fatigue are likely related in this population however the specific nature of their relationship is not known. The purpose of this study was to investigate the effects of fatigue on standing postural control in individuals with mild to moderate MS-related disability. METHODS: Traditional Center of Pressure (CoP) analysis as well as Time to Contact (TtC) of the CoP was used to assess postural instability. MS and Control groups both performed a variety of postural tasks before and after 30 minutes of treadmill walking designed to elicit fatigue that would be experienced during daily life. RESULTS: Individuals with MS showed a greater reduction in postural stability during maximal reaches following walking than did the Control group. However, people with MS demonstrated greater stability than the Control group during these tasks, although their reach performance was reduced. DISCUSSION: The MS cohort demonstrated a greater compromise to stability following fatigue than the control group. The decreased max reach performance by the MS group implies a possible protective strategy in which stability is prioritized at the expense of reach distance. Due to their higher susceptibility for symptomatic or disease specific fatigue, people with MS may be at a greater risk for balance dysfunction while performing activities of daily living.

**LANDSCAPE ARCHITECTURE**

**379 Concourse 9:00-11:00 Board 64C**

Alexander Jardin  
Annaliese Bischoff (Faculty Sponsor)  
Department of Landscape Architecture, UMass Amherst  
Nobody cares about the building; It’s what’s going on inside

The main workspace housing the Landscape Architecture and Regional Planning/Environmental Design program is located in Hills North, adjacent to the Central Dormitories area and Studio Arts building on the Eastern side of the UMass Amherst campus. The building is set to be demolished in a couple years and the program will be moved elsewhere but this presents a unique opportunity before the program moves out… The facade of Hills North gives no indication of the amount of creativity that goes on within the walls. The structure itself is outdated, literally falling apart, the original building materials, faded and aesthetically unappealing. With the thought that the exterior doesn’t represent the nature of work on the interior, an idea manifested to bring attention to this overlooked creative hotspot. Promoting a positive identity for the program along with its award winning faculty and students, a large planting plan was conceived to paint on the facade of the building. Massive sketched and rendered trees not unlike the ones often seen in landscape plans, would meander from the northern ground corner across to the southern rooftop corner of the structures western facade. The graphic is meant to encourage visitation, raise awareness, boost morale, and provoke thought, not only by the final result but also through the process of planning and development, from beginning to end.

**LEGAL STUDIES**

**380 Auditorium 11:35-12:20 Board 35A**

Chau Vu  
Scott Benjamin (Faculty Sponsor)  
Department of Biology, Bunker Hill Community College  
Is the US path to freedom of speech mirrored in the use of the internet in China, and Vietnam

The First Amendment can be categorized in five different areas: freedom of religion, speech, press, assembly, and the right to petition. Freedom of speech and of the press are especially essential components of a representative democracy. A variety of social, political and geographic conditions in the Colonial and post Colonial US set the stage for the creation of freedom of speech and press. This research examines the idea that the path to freedom of speech
that was followed in the US, is now being mirrored by changes induced by the internet in China and Vietnam. By comparing various social and cultural conditions created by the internet, the research shows that despite some important differences, the internet setting a stage similar to the Colonial conditions in the US that led to freedom of speech. The internet allows for “cyber-geographic protection from authority,” blending of different cultures, and outside support from outside parties. By better understanding the cyber-path to freedom of speech, we can better predict how and when changes in regimes like China and Vietnam may take place. Armed with this knowledge we may be able to influence positive change towards freedom of speech in places like China and Vietnam.

LITERATURE

381 Auditorium 2:30-3:15 Board 29A
Crystal Guerrero
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Analyzing and Defining Evil: Through Historical Events, Novels, and Plays

Throughout history, acts of humans being evil can be found not only in past world events but also in past literary works. The historical event that will be analyzed is the civil war that occurred in Guatemala from 1960 to 1996. William Shakespeare’s Macbeth uses elements of imagery, tone, language and symbolism to conceptualize people’s descent into evil. We will be analyzing these instances. What is inferred from these sources is that the potential for evil is as possible as the potential for good.

MANAGEMENT

382 Auditorium 11:35-12:20 Board 36A
Bradley Amari
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Build Your Dream World

Lucid dreaming is a new acknowledgment in the scientific world. This research analyzes the historical evidence of lucid dreaming. First, we consider the Buddhist Monks, practitioners of dream yoga for 2,000 years. Second, we dissect the work of Hervey Saint-Denys, who applied positivism to view lucid dreaming. Concluding with Stephen LaBerge, who is recognized for proving lucid dreams are real, promotes the application of lucid dreams for real world problem solving. By applying the various techniques to a personal attempt to lucid dream, the results provide a realistic conclusion of the access individuals have to lucid dreaming.

383 Auditorium 11:35-12:20 Board 37A
Ashley B Cornish
Smbat Defterderian
Paul Conceison
Jay Mahoney (Faculty Sponsor)
Department of Management, Worcester State University
Let’s Can Hunger

Food insecurity is a global issue, with an estimated 870 million people suffering from hunger daily. In Worcester County, hunger is six times the Massachusetts average. We were compelled to address the immediate needs of our neighbors. Educational and religious organizations have been the backbone of community food drives. We felt there was a large segment of potential support yet untapped: employers. Partnering with Campbell’s Let’s Can Hunger initiative, the WSU Enactus team developed Art-Can-Tecture. A unique food drive with a creative twist, A-C-T was designed to offer organizations a mechanism to support their internal culture and enhance a sense of belongingness while providing a greater good to the community. Employing marketing concepts like brainstorming, focus groups, and Delphi Techniques, we developed the concept, created the operational framework and launched the pilot program. To ensure maximum exposure and participation, we undertook a multi-pronged advertising and PR approach with traditional print, social media, and buzz campaigns. The pilot drive garnered 1,200 pounds of goods donated to a
local food bank while providing hunger-awareness across the campus community. Through post-mortem analysis and feedback, the concept was refined and an introductory letter and “How-To” pamphlet were designed for general release to employers.

384 Auditorium 11:35-12:20 Board 38A
Nancy Moreira
Tiffany Milotte
Victor Palencia
Robert Finnegan
Jay Mahoney (Faculty Sponsor)
Department of Management, Worcester State University
Entrepreneur-Shop

The goal of “Entrepreneur-Shop” was to provide no-cost business advising services to local small business owners and aspiring entrepreneurs. Small businesses and start-ups face tight financial, time and knowledge constraints as they address the challenges of managing money, creating new revenue streams, and containing costs. “Entrepreneur-Shop” taught marketing and accounting practices designed to make an immediate difference. The accounting module employed QuickBooks, an inexpensive, comprehensive, accounting and business management software. We tailored the module to hit salient aspects via a practical hands-on session so participants left with a working understanding. We committed to further meet with participants at their location to ensure transferable knowledge. The second segment of Entrepreneur-Shop taught social media marketing implementation through Facebook, Twitter, and basic website development. Focused on the necessity of having a web presence, we identified free/low cost options. Through an interactive one-one-one session, participants built and launched a business web-page. Combined, the modules provided entrepreneurs a different skill set they can use to enhance their business viability. To assess the efficacy of the workshops, we constructed pre- and post- tests, first examining construct and content validity of the instrument. We conducted interviews to assess the perceived value of the workshop at time three. Results have been analyzed, charted and graphed and will be presented.

385 Auditorium 11:35-12:20 Board 31A
Chelsea Glennon
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
Corporate Social Responsibility in the Personal Care Industry

In today’s business world, corporations are becoming more concerned with the effects that they have on the environment. Corporate Social Responsibility (CSR), a practice that promotes corporate environmental responsibility, has also become widely accepted as a business strategy for many companies. Businesses have begun to implement environmental responsibility measures while continuing to profit. This research study will examine five companies that have implemented corporate responsibility measures, and will determine whether or not their sustainability measures have had a positive effect on their profits. The companies chosen are a part of the personal care industry in the consumer goods sector. This particular industry was chosen because it has recently come under increased scrutiny due to the many toxins that are used in its products. This study suggests that socially responsible companies will be more profitable and enhance their brand, gain market share, and increase their bottom line. This study will analyze financial and non-financial data for each of the five companies to determine whether or not their environmentally responsible practices have actually increased their profits. This study will use external rankings to measure the CSR of each company for the purposes of examining this research question. Based on my literature search I expect to find a strong positive correlation between CSR and the profits of the companies that implement it.

386 Auditorium 11:35-12:20 Board 32A
Jason Lee
Kiran Verma (Faculty Sponsor)
Department of Accounting, UMass Boston
NFL goes international?

My study uses quantitative and qualitative data analysis approach in order to determine, whether the NFL can
successfully reach its revenue goals by relocating or expanding to London. One of the absolutes in professional sports and a reason for its exemplary success is the uncertainty of the outcomes of the games, season and championships. This unpredictability is what impacts a team’s attendance and revenues. The NFL is a 9.5 billion dollar a year industry and is expecting to increase its revenues to 25 billion dollars by 2027, a 170% increase from the current revenues. In order for the league to do so, they must expand. The most potentially lucrative, yet possibly the most controversial, expansion strategy being discussed would involve sending a team overseas into a new market in London, England. As this expansion plan for the NFL poses enormous risk, in this study I hope to examine if the potential rewards are equivalent to make this a viable strategy for the league. In order for my thesis to prove valid I am generating a sensitivity analysis which I will use in conjunction with an industry analysis to comprehend the many variables facing the league’s expansion. My benchmark is the league reaching 25 billion dollars by 2027. Through my research I feel I will come to the conclusion that it is the right financial decision, for the NFL to relocate a team to London, but will not definitively know until the data is studied.

387 Auditorium 11:35-12:20 Board 33A
Anthony McDonnell
Jay Mahoney (Faculty Sponsor)
Department of Management, Worcester State University
Sam’s Club Step Up for Small Business Partnership

Our WSU Enactus team is working with a local breakfast and lunch establishment to increase revenues and decrease costs. In Phase 1 of the project, completed in 2012, we focused on reducing costs with the purchase of energy-efficient kitchen appliances and lighting. We also designed and implemented a pilot coupon campaign, which yielded a greater than national average return. This year, in Phase 2 we focused on increasing revenues through signage visibility and targeted marketing campaigns. We updated the SWOT analysis and carefully reviewed the financials. Signage was addressed with a feather sign installed, resulting in a 2% immediate increase in patronage. Combined with the Phase 1 efforts, this resulted in a 20% increase in sales over the same period last year. Research into viable permanent signage options was completed and a decision made. Permitting and sponsorship/partnership negotiations are underway. A multi-pronged coupon campaign was developed and launched, segmenting the market by user and time, creating a 2 X 2 matrix. We expanded the coupon distribution channels and will monitor the efficacy of each method. A new web page was created and the owner empowered to take control of daily updates, and postings. Increases in traffic on the page and through other social media has been tracked and recorded. Additional product mix options and facilities optimizations will also be discussed. We are at or exceeding target on all measures and have prepared detailed charts and graphs for presentation.

388 Auditorium 11:35-12:20 Board 34A
Melisia Wallace
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Spiritual Intimacy

Research Question: Does spirituality contributes to having a successful marriage. Intimacy is defined as a close personal relationship between two or more people, but each individual has a different meaning of what intimacy means to him or her. Psychologist Robert Sternberg defines intimacy as closeness, sharing, and bonding between people, sharing their thoughts and feelings. Human beings have the ability to develop intimacy with one another, and numerous factors have been shown to affect the development of intimacy. This research will look at spirituality as one of the factors that contributes to having a healthy intimate relationship. Spiritual intimacy is a connection between a couple and God, or whoever they look to for spiritual guidance. Spirituality in itself can be defined as a relationship between ourselves and something greater. I hope to determine whether spirituality has an effect on the success of marriages.

MARKETING

389 Auditorium 11:35-12:20 Board 39A
Anthony McDonnell
Julie Broderick
Jay Mahoney (Faculty Sponsor)
Department of Management, Worcester State University
On Guard 5K

The risk of suicide among corrections officers is 39% higher than the general working population*. On average, corrections officers only live 18 months after retirement and 44% will experience some sort of symptoms of Post Traumatic Stress Disorder. Worcester State University Enactus, in collaboration with the SHINE Initiative and the Central Massachusetts Suicide Prevention Coalition, will host the first annual On Guard 5K race in Worcester, MA and a portion of the proceeds will aid in education programs at the high school and college level. We have designed and will conduct focus groups at Worcester College Consortium campuses on mental health awareness and suicide prevention. Data will be used to create an effective, on-target message for the fall speaker series. With the coalition, we are currently creating a survivor support group for corrections officers and their families. Our team and the SHINE Initiative have partnered with the Worcester Sharks Hockey program to host “Healthy Bodies, Healthy Minds” mental health and suicide prevention symposium on March 24th. In addition, a mental health first aid kit will be implemented in the WSU Criminal Justice Program to educate students on the psychological effects of working in the department of corrections and how to seek help. We have created the framework, brokered partnerships, coordinated the efforts, marketed and launched a concerted campaign to increase awareness of suicide awareness and help. *Archives of Suicide Research

390 Auditorium 11:35-12:20 Board 40A
Valter Gomes
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Clothing that Changes Our Consumption Behavior

Our culture encourages us to buy, use, and throw away items as soon as possible, then buy again. This endless cycle supports a system that is robbing the earth of its natural resources and destroying our clean air, water and soil. Products, like clothing, that are greedily consumed today deplete vital resources and will impact our future survival. This cycle needs to change. By changing our buying behaviors we can end this vicious cycle of over consumption. The purpose of this research is to analyze fashion trends, consumers buying habits and to look deeper into enterprises that utilize a sustainable model. Focus interviews and surveys provided data on student ideas about: buying habits, sustainability in buying, and methods of making sustainable fashion attractive to consumers. The results from the surveys and interviews informed the creation of a proposed sustainable clothing company, Bluenose Green. The company seeks to educate consumers about environmental issues and inspire them to change their harmful buying behaviors. This research concludes with a discussion of the practicality and numerous benefits of creating a green fashion economy.

MATHEMATICS & STATISTICS

391 Concourse 2:30-3:15 Board 56C
Jacob Sousa
Alfa Heryudono (Faculty Sponsor)
Department of Mathematics & Statistics, UMass Dartmouth
RBF-based Image Compression

Image compression is typically done using some method based on the discrete cosine transform (DCT, related to the Fourier transform), but there is also the possibility of image compression based on radial basis function (RBF) interpolation. Rather than representing an image as a combination of cosine functions of varying frequencies as DCT methods do, an RBF method uses radial functions (functions whose value is dependent only on the distance from some point) centered at varying points on the image. While research has been done in this area before, ultimately there haven’t been very many attempts to create an RBF-based image compression scheme and so it continues to be worth investigating. This research is still in progress, so the results are not yet certain, but essentially the methodology will consist of first developing a compression scheme that is able to choose an appropriate subset of pixels from the image such that it is both representative of the entire image and can be stored compactly, then evaluating the image quality, particularly in comparison to JPEG, both by objective measures (RMSE, for instance) and subjective judgments (surveying people to determine which compression scheme’s output looks better). And afterward it may be worthwhile to develop an algorithm for efficiently rendering the image, as the compression scheme isn’t particularly useful otherwise, but ultimately the research primarily concerns the quality of the image relative to its resulting file size.
MECHANICAL ENGINEERING

392 Auditorium 2:30-3:15 Board 31A
Collin Budz
Yahya Modarres-Sadeghi (Faculty Sponsor)
Department of Mechanical Engineering, UMass Amherst
Vortex Induced Vibrations Of Curved Circular Cylinder In Flow

Vortex induced vibrations (VIV) occur when a body is subjected to fluid flow which causes the periodic shedding downstream of vortices off of the body. The periodic nature of the formation and shedding of the vortices causes the pressure distribution on the body to be non-uniform, and thus result in lift forces on the face of the body. As the vortices shed off of the body the direction of the lift force changes, causing the body in flow to oscillate. This research presents the findings of physical VIV experiments with a curved circular cylinder using a water tunnel; this geometry is common in the cables of offshore floating platforms, among other applications. The cylinder is flexibly mounted using air bearings and springs to allow one degree of freedom. This geometry, unlike straight, vertically oriented circular cylinders, is not well studied. The study focuses on the lock-in region, where the body sees large amplitude oscillation, for two orientations of the cylinder with respect to the flow direction. Flow visualization helps to understand pictorially the behavior of the vortices shed. Tip effects, often known to have a significant impact on VIV, are investigated for this geometry.

393 Auditorium 2:30-3:15 Board 32A
Natalie Zucker
Frank Sup (Faculty Sponsor)
Department of Mechanical Engineering, UMass Amherst
Design and Manufacture of Handlebars for a Smart Walker

The project aims to design and manufacture handlebars for a smart walker that provides stability and comfort for the user. The handlebars will fit on a robotic walker that uses the chassis of the uBot-6 mobile robot as its main platform; the uBot is a small and lightweight research platform developed in the Laboratory for Perceptual Robotics at UMass-Amherst for mobile manipulation that was designed to be an economical and highly capable robot. The final robotic walker aims to assist the elderly and mobility-impaired users in their homes and support users while sitting or standing. Acting as an inverted pendulum, the walker actively stabilizes while providing light support. The handlebars play a critical role in the final design of the smart walker. The handlebars provide support, balance, and in some cases a steering mechanism. The ergonomics, comfort, and effectiveness of the handlebars have been taken into account to optimize the final design.

MERCHANDISING & TEXTILES

394 Auditorium 9:00-11:00 Board 1A
Amanda M Gundel
Lisa K Gallagher
Nichole A Fantasia
Rachel A Haggard
Jessica Bond
Virginia Noon (Faculty Sponsor)
Department of Merchandising & Textiles, Framingham State University
Awareness and Willingness of College Age Students to Purchase Ethically Friendly Fashion.

The purpose of this study is to determine the awareness and willingness of college age students to purchase ethically friendly fashion. By studying this topic the researchers hope to gain insight into what motivates college age student’s purchases of ethically friendly fashion, which includes both organic, and fair trade products. Four hypotheses have been developed and will be tested in this study; H1: The majority of college age students will have little awareness of ethically friendly fashion. H2: Female college age students will be more aware of ethically friendly fashion than male college age students. H3: Female college age students will be more willing to pay for ethically friendly fashion than
male college age students. H4: The majority of college age students have not purchased ethically friendly fashion. A survey instrument will be distributed to 100 college age students to determine their awareness and willingness to purchase ethically friendly fashion. The findings from this study will provide valuable information regarding what consumers find important and the ethically friendly fashion they are willing to purchase.

395 Auditorium 9:00-11:00 Board 2A
Caitlin Dalrymple
Heather Sheline
Jessica Phaneuf
Wanita J Thomas
Kaitlyn Doyle
Virginia Noon (Faculty Sponsor)
Department of Merchandising & Textiles, Framingham State University
The Role of Awareness of Environmental Impact of Denim Jean Production on Purchasing Decisions by College Age Consumers

The purpose of this study is to determine how awareness of environmental impact of jean production influences purchasing decisions of college age consumers. Jeans are a major staple to the college-age consumer's wardrobe. There are many steps in producing jeans that negatively impact the natural environment. Three hypotheses were created and tested for this study; H1: College age consumers have a very limited awareness of the environmental impact of denim production. H2: College age consumers rarely consider how the impact of jean production influences their purchasing decisions. H3: College age consumers consider economic and aesthetic factors more than environmental factors when purchasing jeans. A survey instrument will be given to approximately 100 college age consumers, between the ages of 18 and 25 to determine the role that concern for the environment plays on purchasing decisions. Information gathered from this study will provide valuable insight to designers, denim producers and manufacturers of denim jeans.

396 Auditorium 9:00-11:00 Board 3A
Alexandra Finley
Alison Weare
Amanda Matvichuk
Lara Garnett
Virginia Noon (Faculty Sponsor)
Department of Merchandising & Textiles, Framingham State University
The Role Age Plays in the Perceived Value of Fair Trade Fashion

The purpose of this study is to determine the role age plays in the perceived value of fair trade fashion. This study will compare two groups of fair trade apparel consumers in order to understand their attitudes and motivations towards fair trade apparel products. Three hypotheses were developed and will be tested for this study; H1: A large majority of Generation Y consumers will be willing to pay a high premium for fair trade fashion. H2: A low percentage of baby boomers will be willing to pay a high premium for fair trade fashion. H3: A majority of Baby Boomer consumers will pay a high premium for an organic cotton T shirt. A survey instrument will be given to approximately 100 consumers representing Generation Y (age 18-35) and the Baby Boomer Generation (age 48-66). The results of this study will provide producers of fair trade products important information to assist in effective advertising and promotion of fair trade fashion.

397 Auditorium 9:00-11:00 Board 5A
Lindsey Harris
Melissa B Brady
Samantha R Kaplan
Taryn McCarthy
Virginia Noon (Faculty Sponsor)
Department of Merchandising & Textiles, Framingham State University
Fair Trade Fashion: Middle Age Consumer's Awareness of and Willingness to Pay

The purpose of this study is to determine middle aged consumer awareness of fair trade fashion and their willingness to
pay for it. With increasing consumer concern for how products are being produced throughout a product life cycle, it is important for retailers to better understand what drives purchases of fair trade fashion. Four hypotheses were created and tested for this study; H1: The majority of middle aged consumers who purchase organic goods will be more willing to pay for fair trade fashion. H2: Middle aged consumer who purchase organic goods are aware of fair trade fashion. H3: The majority of middle aged consumers who do not purchase organic goods are not aware of fair trade fashion. H4: A small percentage of middle aged consumers are willing to pay higher prices for fair trade fashion compared with traditionally produced fashion. Approximately 100 middle aged consumers shopping at an upscale mall will be given a questionnaire about purchasing habits. This study will provide valuable information for both manufacturers and marketers regarding middle aged consumers awareness and willingness to pay for fair trade fashion.

398 Auditorium 9:00-11:00 Board 4A
Jaclyn LaFrance
Lauren M Fry
Olivia Henry
Stephanie A Osborn
Lauren Shaffer
Virginia Noon (Faculty Sponsor)
Department of Merchandising & Textiles, Framingham State University
College Age Consumers’ Knowledge of Fair Trade Fashion and its Influence on Purchasing Decisions

The purpose of this study is to determine college age consumers’ knowledge of Fair Trade Fashion and its influence on purchasing decisions. This topic is important to study due to the overall purchasing power of college age consumers and the impact it has on the economy, environment, and driving fashion and business trends. Three hypotheses were created and tested for this study; H1: College age consumers have a broad range of knowledge about fair trade fashion. H2: College age consumers are aware of fair trade fashion, but this knowledge plays a small role in purchasing decisions. H3: College age consumers who have a high degree of awareness of fair trade fashion are more likely to purchase fair trade products than consumers who are not. A survey instrument to measure levels of awareness and purchasing practices will be administered to approximately 100 college age consumers to determine their knowledge of fair trade fashion and the influence it has on purchasing decisions. Information gained in this study can be used to assist fair trade clothing retailers as well as fair trade advocates in development of marketing strategies used to increase awareness of fair trade fashion.

MICROBIOLOGY

399 Concourse 9:00-11:00 Board 62C
Michael Boucher
Michele Klingbeil (Faculty Sponsor)
Department of Microbiology, UMass Amherst
Structure-Function Analysis of Trypanosoma brucei Mitochondrial DNA Polymerase ID

Trypanosoma brucei is the protozoan parasite responsible for the deadly disease African sleeping sickness. Current drug treatments for sleeping sickness have toxic and sometimes fatal side effects, and the emergence of drug-resistant parasites is an increasing threat. The identification and characterization of novel biological features is essential for the discovery of new drug targets. The mitochondrial DNA, called kinetoplast DNA (kDNA), of T. brucei is a massive network of topologically interlocked minicircles and maxicircles that is essential for parasite survival. RNA interference (RNAi) indicated that three of this organism’s six mitochondrial DNA polymerases (TbPOLIB, TbPOLIC, and TbPOLID) are essential and have non-redundant roles in kDNA replication. TbPOLID contains a family A polymerase domain and a DNA Pol I-like 3'-5' exonuclease domain. To further understand its in vivo function, we are using an RNAi complementation approach for structure-function analyses. We have used alanine substitutions of conserved active site aspartic acids to generate mutants deficient in polymerase or exonuclease function, and we are generating an N-terminally truncated protein. Inducible expression of epitope-tagged mutants coupled with 3' UTR-mediated RNAi of endogenous protein allows for a detailed analysis of TbPOLID's molecular roles. UTR-targeted TbPOLID silencing in the cell line StLID3'UTR resulted in ~80% knockdown of TbPOLID mRNAs after two days, growth inhibition after four days, and drastic kDNA loss by six days, similar to previously published results. These data indicate that this parental cell line is suitable for our in vivo studies, which will be the first such analysis on a kDNA replication protein.
400  Concourse 1:30-2:15 Board 56C
Sam Saliba
Guixin (Susan) He (Faculty Sponsor)
Department of Microbiology, UMass Lowell
Susceptibility Comparison to Fluoroquinolones by using Staphylococcus aureus and Pseudomonas aeruginosa

AUTHORS: Sam Saliba, Conner Thorpe, Michael Laundry, Katelyn Keef, and Gui-Xin He Bacterial fluoroquinolone resistance is becoming an emerging issue for treatment of nosocomial infectious diseases. Thus, determination of bacterial susceptibility to fluoroquinolones in vitro is critical for selecting a proper fluoroquinolone and its dosage for chemotherapy. Staphylococcus aureus and Pseudomonas aeruginosa are the most common nosocomial infectious agents, and their resistant isolates are increasing in the United States. In order to evaluate the susceptibility accurately, we compared the minimal inhibitory concentration (MIC) of S. aureus and P. aeruginosa to fluoroquinolones by using Kirby-Bauer’s (KB) method and the serial dilution method. The fluoroquinolones tested were norfloxacin, ciprofloxacin, and levofloxacin. The bacterial strains used were P. aeruginosa PAO1 and S. aureus ATCC 6538. The test results indicated the MIC of serial dilution method is more accurate than the KB method, as KB method has disadvantages such as getting false zones of inhibition, having to maintain the McFarland standard, or having to purchase the expensive antibiotic discs. However, the serial dilution method has the advantages of simply counting the colonies from a thousandth dilution once they’ve been poured onto the plates, not having to buy discs to measure susceptibility, and is not limited to slow-growing organisms like the KB method is. Therefore, we believe serial dilution method is more effective, accurate, and cheap approach for determining the susceptibility of S. aureus and P. aeruginosa to fluoroquinolones.

401  Concourse 9:00-11:00 Board 63C
Molly Stevens
Paula Stamps (Faculty Sponsor)
Department of Public Health, UMass Amherst
Smallpox Vaccination: How Prepared Are We?

In December 2002, after 9/11 and the anthrax attacks on our country, President Bush announced the Smallpox Vaccination Program in response to the lack of preparedness for bioterrorism attacks. Smallpox, a deadly disease eradicated in 1980, is a Category A pathogen that has been weaponized by other nations. With the impending war on terror, the threat of smallpox intensified and our leaders devised this program to strengthen our preparedness. However, by April 2003, the program barely reached 8% of its original goal to vaccinate 500,000 healthcare workers. Surveys given to workers at the time reveal a range of opinions and reasoning for accepting or, more often, declining vaccinations. This paper will be based on a survey given to nurses and doctors at a local hospital. It is designed to reveal a greater understanding of the Smallpox Vaccination Program and its faults, as well as any changes in opinion or knowledge of smallpox and bioterrorism by today’s healthcare workers. Using critical analysis of peer-reviewed articles, government documents, and scholarly literature, this paper intends to compare and contrast the findings of this survey to those of the original surveys. It is expected that some opinions and depth of knowledge will remain the same while others will have changed over the years. Only one hospital will be surveyed, so future research will require more surveys with more data for further insight. It is important to understand why the program failed and what can be done to learn from the mistakes for future efforts. Only then can we successfully prepare for and protect our nation against the threats of bioterrorism.

402  Concourse 9:00-11:00 Board 61C
Alice Tran
Michele Klingbeil (Faculty Sponsor)
Department of Microbiology, UMass Amherst
Does Trypanosoma brucei mitochondrial DNA polymerase POLID undergo in vivo phosphorylation?

The mitochondrial DNA of Trypanosoma brucei is a unique network of dozens of DNA maxicircles and thousands of minicircles, interlocked like chainmail and condensed into a disk called kinetoplast DNA (kDNA). kDNA replication occurs over spatially and temporally separated steps; for instance, while early stages such as minicircle release and
initiation occur in the kinetoflagellar zone, Okazaki fragment processing is thought to occur at the antipodal sites flanking the kDNA disk. Mitochondrial DNA polymerase POLID, one of three DNA polymerases required for kDNA replication, undergoes dynamic localization; although POLID localizes throughout the mitochondrial matrix for most of the cell cycle, it redistributes to foci at the antipodal sites during kDNA synthesis. The mechanism by which POLID achieves this dynamic localization remains unknown, and we investigated whether this protein undergoes in vivo phosphorylation. Working with a single expressor T. brucei cell line that expresses only PTP-tagged POLID (IDPTP), we immunoprecipitated IDPTP using IgG-conjugated sepharose beads to bind to the Protein A moiety of the PTP tag. We analyzed the resulting eluate by mass spectrometry, but despite achieving 48% coverage of POLID, no phosphorylated residues were detected. As POLID may only be phosphorylated in a fraction of cells in an unsynchronized population, we then began pilot hydroxyurea experiments to enrich for cells undergoing kDNA replication and to evaluate the efficacy of hydroxyurea treatment by immunofluorescent microscopy. Evidence of POLID phosphorylation could guide future work, including phosphorylation site mutagenesis to determine whether disrupting POLID phosphorylation also disrupts POLID localization and inhibits kDNA replication.

**MOLECULAR BIOLOGY**

403 Auditorium 3:30-4:15 Board 33A  
Soren Hough  
Jennifer Ross (Faculty Sponsor)  
Department of Physics, UMass Amherst  
**Using DNA Origami to Evaluate Motor Protein Binding Patterns**

Motor proteins carry nutrients around the cell on a complex interconnected matrix of filamentous polymers called microtubules. However, it is still unclear how these motor proteins bind to their molecular cargo. Using DNA origami, a powerful tool for microscopy assays and analysis due to the robust and programmable nature of DNA, we will create a ~20 nm tetrahedral nanocage that will serve as an artificial cargo for kinesin-1 intracellular transport. We will then test our model system and evaluate using single-molecule imaging techniques.

404 Auditorium 3:30-4:15 Board 32A  
Philip McGilvray  
Thomas Maresca (Faculty Sponsor)  
Department of Biology, UMass Amherst  
**A Novel Pool of Centromeric BubR1 Requires INCENP for Proper Localization and Function**

The Spindle Assembly Checkpoint (SAC) is an essential cellular checkpoint that ensures proper segregation of the genome during cell division. Errors in this checkpoint lead to chromosomal mis-segregation between daughter cells, a precursor to many types of cancer. The SAC is satisfied, in part, by tension between sister kinetochores, which is generated when chromosomes become properly aligned at the metaphase plate. Incorrect kinetochore-microtubule attachments are incapable of generating kinetochore tension, and do not satisfy the SAC. SAC regulators are responsible for preventing progression into anaphase when the chromosomes are not properly aligned. The essential SAC component BubR1 is believed to localize exclusively to the kinetochore in mitosis. However, new evidence suggests that a second population of BubR1 may localize to the centromeric DNA that underlies the kinetochore. We hypothesize that the novel centromeric pool of BubR1 mediates generation of the wait-anaphase signal by the SAC. Here, we investigate the molecular mediators of BubR1 localization to both centromeres and kinetochores and investigate the contribution of each BubR1 pool to SAC signaling. We show that the deletion of an integral centromere-localized protein called INCENP greatly reduces the efficacy of the SAC in preventing anaphase onset when chromosomes are misaligned. Furthermore, we show that a novel pool of BubR1 exists at the centromere and requires INCENP for proper localization.

405 Auditorium 3:30-4:15 Board 31A  
Matthew Moran  
Amanda Simons (Faculty Sponsor)  
Department of Biology, Framingham State University  
**Effect of Resveratrol and Resveratrol Metabolites on Cell Proliferation and Apoptosis in MCF-10a Cells**
Cancer is caused by the accumulation of DNA damage. Some forms of cancer arise due to failure to repair double strand breaks in DNA, which leads to cancer through the deletion of part of the genome. Resveratrol is a plant compound that has been shown to protect against cancer by downregulating DNA repair genes, slowing cell proliferation, and inducing apoptosis in cancerous cells. This study attempted to determine what effect resveratrol has on cells that are not cancerous. Resveratrol itself however is rapidly metabolized and the highest plasma concentration reported to date is 2.4 µM. Three of resveratrol's metabolites, however, are present in significantly higher concentrations. This study therefore also attempted to determine what effect these metabolites have on non-cancerous cells. This was done through propidium iodide staining of genomic DNA from MCF-10a human breast epithelial cells and analysis through flow cytometry. Cell proliferation and DNA content were measured to give indications of early apoptosis, cell cycle status and DNA damage.

**MUSIC**

**406 Auditorium 2:30-3:15 Board 35A**

Amy Tisdell  
Susan McPherson (Faculty Sponsor)  
Department of English, Quinsigamond Community College  
**Music and its Effect on Cognitive Function**

This research presentation will explore the various effects of music on cognitive function and processing. This presentation will look in depth into a person's neurological responses when listening to music and how this neurological response affects cognitive function. This effect in cognitive function is demonstrated by music therapists, who treat many people who suffer from low cognitive functioning abilities such as Alzheimer's patients, people with Autism, and Amnesia patients. This change in cognitive function includes higher mathematics reasoning skills, higher I.Q. scores, and increased memory, as shown by various scientific studies. In conclusion, this presentation will demonstrate how exposure to music has a positive affect on cognitive function and processing.

**NURSING**

**407 Concourse 2:30-3:15 Board 63C**

Kyleen Aldrich  
Janice Foust (Faculty Sponsor)  
Department of Nursing, UMass Boston  
**A New Approach to an Old Problem: Defining Nursing’s Role in Successful Transitions to Long-term Residential Care**

Background/Purpose: A growing body of nursing research addresses the transitional period for older adults entering long-term residential care. However, gaps exist in our understanding of nursing’s role in the transition process. Our aim is to develop a model of nursing strategies and interventions to ease the transition to long-term care. This model describes interventions that nurses can incorporate into everyday practice. Methods: We conducted a literature review to examine the transitional care needs and interventions for older adults with a goal of developing a model addressing transitions to long-term care. Results: Most nursing studies provided descriptive information about patient experiences, nursing roles or long term care characteristics. Very few reports described intervention trials. Our proposed model includes domains of therapeutic communication, respect and dignity in care, initiating and maintaining therapeutic relationships, management of patient and institutional routines, patient’s perspective and priorities, promoting social engagement, family involvement, and communication and, environment modification, and incorporating empathic care within current institutional constraints. In the model, the domains comprise the delivery of individualized person-centered care in the long-term care setting. Proposed quality outcomes include measures of patient satisfaction, patient adjustment, quality of life (including function), and health status (clinical and physiologic measures). Conclusions/Implications: This model will identify key issues and gaps in nursing care relevant to this patient population as they enter the long-term care setting. The model will provide a guide for future research, initially observational studies, and subsequent development and testing of innovative strategies to promote a successful transition. Further consideration will be given to questions related to how the transition is facilitated in assisted living versus nursing home settings, how nurses can influence the transition experience, where the transition originates, unique challenges for cognitively impaired versus mobility impaired older adults experiencing residential transitions, and how successful transitions are measured (maintenance of function, control, and independence).
408 Concourse 2:30-3:15 Board 58C
Danielle Bruno
Donna Zucker (Faculty Sponsor)
Department of Nursing, UMass Amherst
Discovering a Model for HIV/AIDS incidence rate in Tapestry Health's Holyoke Needle Exchange Program

The human immunodeficiency virus, or HIV, is a devastating virus that attacks the body's way of defending itself against disease, the immune system; there is no cure. Holyoke, MA has the sixth highest incidence rate of HIV infection in all of Massachusetts and has the highest in Western Massachusetts. “Injection drug use accounts for approximately thirty percent of all HIV/AIDS cases in western Massachusetts, compared to twelve percent in Massachusetts”. Tapestry Health operates the only two needle exchange programs in Massachusetts that are west of Cambridge. The newest program opened in Holyoke this year. The goal of needle exchange programs is harm reduction. One of the goals of the Holyoke Needle Exchange is to help reduce the incidence of HIV/AIDS within the IV drug user population in this city. The number of IV drug users in Holyoke who are already infected is unknown. By using data already collected by Tapestry Health, is it possible to determine the incidence rate of HIV/AIDS specifically for those enrolled in the Holyoke Needle Exchange Program? My research will answer this question. The purpose of my study is twofold; first, research previously established relevant models to find the most effective model to determine the incidence rate and second, to determine whether these models can be realistically applied to the Holyoke community with the information already collected by Tapestry Health.

409 Concourse 1:30-2:15 Board 59C
Shannon Finlay
Victoria Morrison (Faculty Sponsor)
Department of Nursing, Salem State University
Nurses’ Perception of Protocol Effectiveness: Pressure Ulcers- A Qualitative Study

This study explored nurses’ perceptions of protocols for treating pressure ulcers. Literature suggests that adherence by nursing staff to protocol for treatment of pressure ulcers is inhibited by such variables as time constraints and staffing quotas. Using a qualitative design, this study examined the opinions of a convenience sample of nurses caring for patients with pressure ulcers and explored their opinions regarding pressure ulcer protocols. Study results, reported as themes gathered from interviews, led to such recommendations for practice as managing patient pain and providing patient education. Suggestions for future research are provided.

410 Concourse 2:30-3:15 Board 61C
Heather Flimlin
Kristen Sethares (Faculty Sponsor)
Department of Nursing, UMass Dartmouth
Examining the Heart Failure Patient's Knowledge of Exercise

Background: Heart failure is associated with poor quality of life and frequent hospitalizations. Prevention of these occurrences starts with proper self care. Self-care includes patient behaviors that promote health such as exercise. Research suggests that patients who exercise have better clinical outcomes including reduced symptoms. Patient teaching needs to include self-care behaviors to reduce heart failure patient's symptoms as well as support better overall clinical outcomes. Purpose: The objective of the study was to examine the heart failure patient's current knowledge of exercise. Method: Data was collected by interviewing a convenience sample of fifty community based, ambulatory adult patients with chronic, stable heart failure patients using a 5 item questionnaire assessing the heart failure patient's knowledge about physical activity and exercise expectations. The scores on the instrument are multiple-choice and have one correct answer. Findings: Patients demonstrated low levels of exercise knowledge. For most of the questions, between 40% to 70% did not know the current recommended exercise levels. Implications: The American Heart Association guidelines for exercise should be included in all heart failure patient education to improve cardiopulmonary function, reduce heart failure symptoms and decrease rehospitalization rates.
411 Concourse 2:30-3:15 Board 59C
Elisangela Gomes
James Grady (Faculty Sponsor)
Department of English, Bristol Community College
Nursing, Rewards through Change

Nursing offers a wide range of hands-on care with the purpose of improved health and wellness. Before the events of the famous World Wars, nurses had a crucial role in the religious and military sectors. Currently, the expectations of nurses have expanded and diversified. This project will examine the ever-changing identity and roles of nurses and nursing, including the significant developments through history that have completely changed how we define what a “Good Nurse” is.

412 Concourse 2:30-3:15 Board 60C
Elizabeth Hall

Emily Jones (Faculty Sponsor)
Department of Nursing, UMass Boston
Nurses’ Attitudes and the Impact of Moral Distress in End-of-Life Care

Nurses have a crucial role in the provision of end-of-life care. Nurses’ attitudes related to end-of-life care are equally as important and are often impacted by repeated exposure to moral distress. Moral distress is the term generally used to describe circumstances in which a nurse is unable to act on personal moral choices and feels forced to act in a way that is contrary to personal and professional values. When caring for patients experiencing death and dying, nurses must consistently deal with their own feelings surrounding death as well as address the needs of their patients. In addition, nurses must also attend to the needs and desires of family members as well as take into account potentially conflicting ideas regarding the plan of care among and between the healthcare team members, the patient and the family. These situations often lead nurses to experience moral distress. This integrative review of the literature reveals the need for greater emphasis in nursing education related to preparing nurses to encounter moral distress during end-of-life-care. Increasing the education and resources available to all nurses, especially those who commonly encounter death and dying, may help nurses learn to recognize and better manage moral distress. Additional supportive measures and teaching surrounding end-of-life care will decrease the level of moral distress experienced by nurses and will ultimately increase the quality of patient-centered care during such a critical time.

413 Concourse 2:30-3:15 Board 62C
Jennifer Hooper
Cynthia Jacelon (Faculty Sponsor)
Department of Nursing, UMass Amherst
Stress and Coping of Nursing Students: A Research Study

Nursing is one of the highest stress majors offered in colleges and universities—with difficult course loads and the demands of caring for the life of another person in clinical rotations. The purpose of this study was to determine variations of stress levels and use of coping behaviors among nursing students depending on their level in the program: freshman, sophomore, junior, senior and second bachelor. The study included giving 260 students a survey comprised of the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) and also a list of coping behaviors adapted from a survey by Anspaugh (2009). With 237 tabulated survey results, senior nursing students had the highest stress levels and use of negative coping behaviors. Sophomore students had the second highest level of stress, but used the most positive coping behaviors. Second bachelor students, who are older than traditional students, used certain behaviors—reading, hiking, yoga—more than all undergraduate students. This research highlights students who are most at risk of having negative implications of high stress and poor coping behaviors. Although it is not possible to change the challenging program of study of nursing schools—aimed to prepare students for this high-demand profession in healthcare, these results can be used by colleges and universities to improve coping behaviors and stress levels of students and to assist them to thrive in academics, in clinical and in life outside of nursing school. Keywords: nursing students, stress, coping behaviors, positive and negative coping
**414 Concourse 1:30-2:15 Board 60C**  
Renee Laurencelle  
Elizabeth Chin (Faculty Sponsor)  
Department of Nursing, UMass Dartmouth  
The effects of stress on eating behaviors in students at UMass Dartmouth

**PURPOSE:** Poor eating habits in college students is a major health concern. Stressful situations often influence eating habits, with students choosing foods higher in fat and sugar or engaging in binge eating or food abstinence. The purpose of this research study was to examine the relationship between stress and eating behaviors in freshman nursing students.  
**METHODS:** Freshman nursing students were surveyed on an exam day using Cohen's (1983) Perceived Stress Scale to determine stress levels and an eating habit survey as well as a food diary to examine eating habits and dietary intake during that time period. Participants were surveyed during an A&P exam at a public university in the northeast. IRB approval was obtained and consent forms were completed. The final sample included 5 participants.  
**RESULTS:** Students (n=5) reported eating more frequently when stressed (r = - .37), however the foods choices they made during this time were not unhealthy. On the eating habits survey students reported eating more healthy foods when stressed (r = .63). Examination of the completed food diaries supported these findings. **CONCLUSIONS:** The data analysis supported the study hypothesis that student eating increased during stressful situations. However an unexpected finding was that the extra food consumed during stressful situations consisted of healthy food. Because data was collected in a small, narrow population, results can’t be generalized. A larger study of eating habits in male and female freshman students during periods of stress should be conducted to further examine this finding.

**415 Concourse 2:30-3:15 Board 57C**  
Aimee Nelson  
Victoria Morrison (Faculty Sponsor)  
Department of Nursing, Salem State University  
Aimee Nelson, Bipolar Disorder in Children and Adolescents: The Nurse’s View

This study explored the types of bipolar disorder in children and adolescents. Bipolarity has become increasingly important due to both the immense difficulty of diagnosis as well as the increased frequency of diagnosis within the populations of children and adolescents. Additionally, the implications of this diagnosis are significant to both the individual as well as to families. Implications for this diagnosis include a variety of comorbidities which have a significant impact on the individual affected. Thus, the specific focus of this study was on identifying the comorbidities associated with bipolarity, particularly in the physical and the psychosocial domains. The comorbidities of the physical domain include self-mutilation and suicide, while the comorbidities of the psychosocial domain include anxiety, depression, drug abuse, and the social stigma associated with a diagnosis of bipolar disorder. Also explored were treatment options for this disorder and its associated comorbidities, and implications for nurses in the care of this client population were suggested.

**416 Concourse 9:00-11:00 Board 33A**  
Lisa Bourgeois  
Phyllicia Richards  
Ginny Chandler (Faculty Sponsor)  
Department of Nursing, UMass Amherst  
Empower Strength: A Resilience Intervention

It has been found that up to one-third of adults have lived through adverse childhood experiences (ACE) that can lead to childhood maladaptation, adolescent health risk behaviors, and adult chronic illness. Protective factors and strength building associated with resilience modes were a focus to intervene the ACE to illness trajectory. The goal was to provide a resilience-building intervention in the form of a 4-week workshop. The subjects (N=5) were undergraduate women who have had adverse childhood experiences. The intervention included individual strength development through writing and group interactions, cognitive flexibility training, coping exercises, and connection to social supports on and off campus. The participants were surveyed prior to the workshop and three months after the workshop. It was found that the participants had the opportunity to explore their ways of thinking and coping with situations, make connections to one another in a non-threatening environment, and learn how to build on the strengths that they
already possessed. This study suggests that resilience interventions can be used to interrupt the cascade leading from stressful situations to illness in a college population. **417 Concourse 1:30-2:15 Board 58C**
Rachel Foley
Alyssa Sady
Ginny Chandler (Faculty Sponsor)
Department of Nursing, UMass Amherst
**Nursing Students and Their Response to Morally Distressing Situations**

The focus of our research topic is the empowerment of undergraduate nursing students in their clinical settings. We are investigating how certain opportunities, relationships, resources and support influence the decision-making process of student nurses in the clinical setting. Unfortunately, feelings of powerlessness are not uncommon in the clinical setting for the majority of nursing students, and these feelings can often lead to moral distress, decreased self-esteem, lack of learning, and ultimately poor patient care. We administered a survey composed of six questions to 25 senior level nursing students concerning what resources would have supported students during a distressing situation and how support could have positively influenced their decision making. Based on the responses of the survey, we identified 6 morally distressing scenarios in areas as followed: MD treatment of patients, staff unresponsive to pain management, end- of-life issues, nurses ignoring patients, family issues and instructor issues. We will be asking traditional and second bachelor level nursing students to actively participate in these scenarios we constructed, and respond to questions composed from the Empowerment and Decision- Making Frameworks developed by Chandler and Wolf. To conclude our project, our plan is to obtain the data needed to provide future nurses and instructors with the appropriate information regarding how they can improve support and decision making skills of nursing students in morally distressing situations. We want to determine what are exactly the essential resources and relationships needed to be implemented for the success of the learning student in a high anxiety setting.

**418 Concourse 1:30-2:15 Board 57C**
Amanda L French
Jessica Demita
Shannon Sayer
Darren A Golden
Anna Volkova
Eileen Stuart-Shor (Faculty Sponsor)
Department of Nursing, UMass Boston
**Global Risk Assessment of Cardiovascular Disease in Resource Constrained Settings: Kenya**

Purpose: Global risk assessment (GRA) tools are currently recommended to quantify risk for cardiovascular disease (CVD) and guide treatment. Many GRA tools require lipid measurements; however, this is difficult to obtain in resource-constrained environments. Gaziano and Framingham have been developed to substitute BMI for lipid readings. WHO GRA doesn’t use BMI or lipids in calculating risk for CVD. The purpose of this study was to assess the feasibility of implementing non-laboratory-based GRA in resource constrained settings and to determine if the tools are similar. Methods: Community-based participatory research was conducted using a convenience sample of consecutive patients screened/treated for CVD risk factors at 5 community health clinics by trained US/Kenyan teams using protocols for physiologic/behavioral measures. Gaziano GRA was calculated with paper tool at the point-of-care, Framingham and WHO GRA were calculated by the researches from dataset. Clinical data abstracted/analyzed using Strata®. US/Kenyan IRB approval was obtained. Results: 941 individuals (mean age 48.6 ± 18.7, 78.6 % female, 100% black) screened and found to have: BMI 24.8±4.9, SBP 137.6±23.6, antihypertensive Rx (18.12%), hx of DM (6.89%), and smoking (6.29%). 50.3% had 2+ risk factors. GRA score of risk for developing CVD in 10 years: Gaziano; Framingham & WHO were [low risk (56.3%; 55.8%, 94.5% ), moderate risk (17.38%; 25.90%, 3.83%), high risk (26.3%; 18.2%, 1.62%)] respectively. Framingham and Gaziano were highly correlated (0.87; P=0.0000), WHO had low correlation with Framingham and Gaziano (0.36; 0.33; p=0.0000) Conclusion/Implications: Results show that non-laboratory-based tools can be used at the point-of-care to guide practitioners in determining risk and developing treatment plan. They also demonstrate that the population screened has a high clustering of CV risk factors. Gaziano and Framingham estimates were similar but WHO was different. At the population level this is important because it can guide reduction strategies and guide future policies.
**NUTRITION & FOOD SCIENCE**

**419 Auditorium 3:30-4:15 Board 36A**
Kevin DePalma  
Matthew Davenport (Faculty Sponsor)
Department of Nutrition & Food Science, Framingham State University  
Fat Replacement in Ice Cream

Many Americans consume too much saturated fat according to the RDA. The American diet is also deficient in omega 3 fatty acids. Omega 3 fatty acids are essential fatty acids which promote brain health among many other biological functions. The predominant source of omega 3 fatty acids is from fish. Ice cream is made with dairy fat which contains a large percentage of saturated fatty acids. If alternative lipid sources were used the saturated fatty acids can be exchanged for unsaturated fatty acids including omega 3 fatty acids. Mellorine is a dairy based ice cream alternative that uses alternative fat to replace milk fat. Mellorine was originally developed for when cream was unavailable, but can now be produced as a nutritionally improved frozen dessert. Current recommendations of omega 3 fatty acids consumed by healthy individuals are 650 mg DHA plus EPA. The modern pallet has increased acceptance of alternative foods; thus the purpose of this experiment is to replace butter fat with fats shown to have positive health benefits. This mellorine base was made with 79.10 % skim milk, 9.05 % sucrose, 1.60 % vanilla extract, 0.25 % stabilizer and emulsifier, and 10.00 % butter fat alternative. The three butter fat alternatives were 100 % olive oil, 96.2 % olive oil and 3.8 % salmon oil, and 96.2 % olive oil and 3.8 % Pollock oil. The base was heated to 60-80 °C, homogenized for 2 minutes, and then frozen in a Taylor ice cream machine until semi solid.

**420 Auditorium 9:00-11:00 Board 44A**
Jennifer Sidebottom  
Morgan E Matuszko  
Ryan J Chappell  
Robert Dunn  
Rachel Dushman  
Lisa Troy (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst  
The Mystery of Sleep; Physiological Sleep Mechanisms Explained

Introduction: On average, people spend about one third of their lives sleeping, as it is crucial to overall health. In our society, sleep problems such as insomnia are becoming increasingly common, and researchers continue to examine the biological mechanisms behind sleep cycles. The purpose of our study was to conduct a literature review in order to understand how certain mechanisms in the brain affect healthful sleep patterns. Methods: An analysis of the physiological mechanisms which mediate sleep was conducted by a search of the current literature in the topic area. The use of primary research articles and scientific reviews were cited for their contributions to the current understanding of physiological sleep mechanisms. Results: Research shows that the primary mechanisms of sleep cycles are mediated by both neurotransmitter levels and endocrine activity. Neurotransmitters are subdivided into stimulating compounds (such as norepinephrine, serotonin, dopamine, acetylcholine, and histamine) and inhibitory compounds (such as GABA and adenosine). Most significant to this study are the deactivating effect of GABA in conjunction with sleep onset. The primary sleep promoting endocrine factor is the hormone melatonin. Conclusion: Both excitatory and inhibitory factors play crucial roles in the architecture of sleep. In a society with an increasing number of sleep problems, understanding the physiology behind these components is important. Previous research has been devoted to melatonin in relation to circadian rhythms. However, various neurotransmitters remain controversial regarding their sleep-related functions, and further research is warranted.

**421 Auditorium 9:00-11:00 Board 46A**
Alexander C Ferreira  
John Frazier  
Justine I McAllister  
Michelle Reilly  
Erin Jones  
Lisa Troy (Faculty Sponsor)
Exercise as a non-pharmacological treatment for sleep disorders

In college students and middle-aged adults sleep deprivation is becoming more prevalent. Sleep deprivation alters many systems and processes within the human body, which can lead to an increase in stress, and a reduction in alertness and cognitive functioning. Exercise has been shown to reduce stress and also improve sleep. Our study aims to examine if exercise may be used as a non-pharmacological treatment to improve sleep. In order to determine the relevance and effect of exercise on sleep we analyzed scientific review and primary research articles. From our review of the literature, we observed that exercise promotes specific cellular mechanisms that have a beneficial effect on the quality and duration of sleep. We conclude that exercise may decrease the amount of sleep medications taken by patients with sleep disorders. Exercise offers a low cost alternative for the treatment of some sleep disorders without the potentially dangerous side effects of commonly used sleep medications. Our research shows that implementing the recommended amount of exercise into a daily routine may reduce healthcare costs by limiting the medications prescribed and used. The added benefit exercise has on preventing chronic diseases may also reduce healthcare costs.

422 Auditorium 3:30-4:15 Board 35A
Jeffrey Larnard
Richard Wood (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst
The effect of two histone deacetylase inhibitors, sulforaphane and Trichostatin A, on vitamin D dependent gene expression in Caco-2 cells.

Epigenetic changes, such as acetylation of nuclear histone proteins, can be induced by bioactive food components and alter chromatin structure and the expression of certain genes. Sulforaphane, a bioactive compound found in cruciferous vegetables, and trichostatin A (TSA), which have a similar chemical structure, have histone deacetylase inhibitor (HDACI) activity and can alter gene expression. We hypothesized that HDACI treatment would increase vitamin D-dependent gene expression in intestinal cells. The two vitamin D-dependent genes studied were CYP24, which encodes an enzyme responsible for deactivating the active form of vitamin D, and TRPV6, which encodes a calcium channel/transporter that is involved in intestinal calcium absorption. The effect of four different dosages of sulforaphane (1, 2.5, 5 and 10 μmol/L) and one dose of TSA (1 μmol/L) with and without the presence of 10 nmol/L 1,25-dihydroxyvitamin D for 24h on the expression of vitamin D dependent genes was tested in the human intestinal cell line, Caco-2. Real time polymerase chain reaction was used to measure mRNA expression and to calculate the relative change in gene expression of CYP24 and TRPV6. TSA alone increased CYP24 gene expression (p<.05). Both CYP24 and TRPV6 gene expression were highly responsive to 1,25-dihydroxyvitamin D in Caco-2 cells. TSA increased vitamin D-mediated CYP24 expression, but vitamin D-mediated TRPV6 gene expression was not affected by HDACI treatment. This research indicates that histone deacetylase inhibitors could be used to affect expression of vitamin D dependent genes in intestinal cells, which could influence vitamin D-related functions; e.g. colon carcinogenesis or Ca absorption.

423 Auditorium 3:30-4:15 Board 34A
Amanda Rutherford
Yeonhwa Park (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst
DDT decreases myogenesis by affecting early myogenic factor, MyoD, expression

Incidents of obesity and type 2 diabetes have increased during the past few decades in the US. However, even with current efforts to modify eating habits and increase activity, the number of individuals suffering from obesity and diabetes continues to grow. This suggests other potentially significant factors may contribute to these diseases. Coincidentally, there is an emerging body of evidence indicating that exposure to persistent organic pollutants, including insecticides, is linked to obesity and type 2 diabetes. Thus, the purpose of this study was to determine the impact of dichlorodiphenyltrichloroethane (DDT), an organochlorine insecticide used on agricultural products during the twentieth century and still present in environment and foods, on myogenesis—the formation of muscle tissue. C2C12 myoblasts were treated with various concentrations of DDT (0, 0.1, 0.5, 1, 5, and 10 μM) for 8 days, while inducing differentiation into myotubes. At day 8, cells were fixed for histological analysis of myotube formation or harvested to determine the gene expression of myogenic factors (MyoD, MyF5, MRF4 and Myogenin). DDT reduced myotube formation dose-dependently, concentrations greater than 1.0 μM. Among myogenic factors tested, DDT treatment decreased expression of MyoD, an early myogenic factor, while no effects of DDT were observed in other
factors. These results suggest that DDT inhibits myogenesis by affecting the early differentiation factor of myotube formation, which could attribute to decreased muscle mass and may lead to increased obesity and type 2 diabetes.

**424 Auditorium 9:00-11:00 Board 45A**
Danielle Kriscenski
Jaclyn M LeBlanc
Katherine D Jones
Madeline L Niziak
Molly Stevens
Lisa Troy (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst

Stressed? Get your rest

Sleep is a vital part of an individual’s mental and physical health. For college students, sleep is essential for brain development and overall well-being. The stressors and pressures that college students endure, such as homework, scholarship requirements, financial burdens and extra-curricular activities (e.g., sports), makes it difficult to find time for a full night’s sleep. In order to further our understanding of the influence of stress on sleep in college students, we critically analyzed primary research articles to establish what research already exists on the topic and suggest future areas of research. Current research suggests that emotional and self-imposed stressors are some of the main reasons why college students experience poor quality of sleep. We have concluded from our data that sleep is controlled by neurobiological, physiological, psychological and biochemical factors that interact with stress and the environment to hinder sleep. Ultimately, students would benefit by finding methods to counteract their stressors, such as meditation and exercise, that have been shown to decrease stress and improve sleep quality. Achieving a balance between friends, school, and family is important for decreasing stress and improving sleep. By better understanding how stress influences sleep, it will be easier to find new ways for students to relieve stress so that their sleep is not sacrificed. Once students develop better sleeping habits, their health and overall well-being will benefit.

**425 Auditorium 9:00-11:00 Board 43A**
Kelly F Collins
Kelsey Bennett
Maxine de Jonge
Mark W Ryan
Robert J Stravinsky
Samantha Torpey
Lisa Troy (Faculty Sponsor)
Department of Nutrition & Food Science, UMass Amherst

Get your BBBBs: How sleep is affected by B vitamins and magnesium

Sleep and nutrition are essential to survival. Research on how diet affects sleep is relatively new and the results are sometimes inconsistent, possibly because previous research studies are relatively few and often have small sample sizes. Recent research suggests that B vitamins and some minerals may be involved in the relationship between sleep and diet. The purpose of this study is to examine the scientific literature to better understand the relationship between sleep, B vitamins (Niacin, B6, B12), and magnesium. Primary research articles and other scientific literature were examined. From our review of the literature, we identified and describe a potential mechanism by which B vitamins and magnesium may influence sleep: through the synthesis of serotonin, derived from the amino acid tryptophan and melatonin, which is produced naturally in the body. Serotonin is helpful at inducing and maintaining sleep, and B vitamins are needed to synthesize serotonin. In some studies, higher magnesium levels improved sleep quality and duration. Future research that involves a greater number of study participants would be beneficial to our understanding. More objective methods to define sleep quality and to distinguish the effects of diet on sleep quality and duration are needed. These methods are necessary to convey the mechanisms of sleep and the role of melatonin and serotonin. A growing percentage of the U.S. population is failing to meet recommended sleep guidelines. A better understanding of the role nutrition plays in improving sleep may provide information to help improve the health and well-being of Americans.
In nuclear science, researchers strive to describe the properties of the nucleons using the framework provided by quantum chromodynamics (QCD). QCD describes the strong nuclear force in terms of interactions between quarks and gluons, which make up hadrons. Traditional approaches to solving these calculations work at high energies but fail in the nuclear regime. A number of theoretical approaches to solving the QCD equations for nuclear processes do exist. The predictions from these approaches can be compared with the results from experimental measurements for those nuclear reactions where both theory and experiment can provide accurate results. One such reaction is pion photoproduction near threshold. A measurement of the total cross-section very close to threshold for pion photoproduction from the neutron was performed using the Tagged Photon Facility at MAX-lab in Lund, Sweden. This measurement was performed by international collaborations in June 2011, which included five students selected from two US universities as part of the NSF funded International Research Experience for Students (IRES) program. A liquid deuterium target was used to provide the neutron target. Due to the target thickness, the pions were not detected directly but instead were captured on another nucleus in the target. This capture resulted in a nominal 128 MeV gamma ray being produced approximately 25% of the time. This gamma ray easily exited the target and was detected using three large NaI detectors: CATS, BUNI, and DIANA. The data collected includes background events which must be subtracted based on timing and energy information, allowing for an accurate fit to the gamma ray peaks produced from pion events. An overview of the measurement data analysis and preliminary results will be presented.

Due to the extensive advancement of terahertz (THz) source and receiver technologies over the past 20 years, the number of applications for THz radiation (0.1-10 THz) is rapidly increasing. The reflective and absorptive responses of materials to THz radiation serve as vital information for medical and remote sensing applications. The precision in measuring the optical constants of materials at THz frequencies depends on the characterization measurement technique and type of THz source/receiver technology used. One of several characterization measurement techniques is reflection ellipsometry. This technique has the potential to offer higher precision measurements of a material's complex dielectric constant than other techniques currently in use. By measuring how a material alters the polarization state of an incident electromagnetic plane wave, the reflection ellipsometric angles, Δ and Φ, are obtained and are used to determine the complex refractive index, n+ik, of a target material. Thus, the index of refraction n and extinction coefficient k of a target material are obtained. The objectives of this thesis are to develop a rigorous theoretical approach to predicting the ellipsometric angles obtained by a THz reflection ellipsometer for layered dielectric materials and to develop software that allows for pre-experimental determination of expected measurement outcomes.

The manufacturing and utilization of an alternative to petroleum and mineral based lubricants is a main interest of
many fields of discipline in today's scientific community. One of the most compelling areas of research involves the use of genetic engineering of non-food oil seed crops to optimize their production of oil, lubricants, wax esters, and other bioproducts. Wax esters are an excellent source of biodegradable lubricant, but can also be used in cosmetics and food products to improve their stability. Currently, fossil fuels are the major source of wax esters. While there are a few plants that naturally fit the criteria to produce the oil bioproducts industry is seeking, their limited availability and high costs eliminate the possibility of developing them for large-scale purposes. In this project, we have selected non-food oil crops with intrinsic characteristics that make them excellent candidates for biofuel production, and have transformed them with genes from natural oil-producing crops that function in oil and wax ester synthesis pathways. By introducing these foreign genes into our target crops via Agrobacterium-mediated transformation method, we are developing transgenic crops that have the ability to produce oil in a way that is both cost-effective and easily integrated into the market for widespread use.

POLITICAL SCIENCE

429 Auditorium 3:30-4:15 Board 39A
Warda Arman
Michael Dubson (Faculty Sponsor)
Department of English, Bunker Hill Community College
Revolution and Art in Yemen

On January 27th, 2011 a spark erupted in one of the most ancient countries in the world. The Democratic Republic of Yemen joined countries like Tunisia and Egypt in what was termed the Arab Spring. This revolution overthrew Ali Abdalla Saleh's 33 year regime and created the birth of a new government, new art and a new way of life. Often times art can express emotions in an approach that sometimes words cannot. This study seeks to show how the political and social changes that led to the revolution and continue to this day are reflected in changes in the many art forms of Yemen. By analyzing the different forms of art including paintings, photographs, music and dance that have erupted all over Yemen, this study shows that political and social changes have major significance in the development of art, essentially creating a new creative movement. Lastly, the study discusses how, in a politically oppressed country as Yemen, art has an important role that influences politics and cultural change.

430 Auditorium 3:30-4:15 Board 37A
Gabriela Castro
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Analysis of the changes caused by the impact of major U.S. immigration laws

Since the founding of the nation, US immigration laws have been constantly changing. Factors like economic, political, social, racial and national security issues influence these laws and do not always result in progressive and equitable outcomes. To better understand the immigration problems in US, this study analyzes some of the laws that were implemented in the country since the Naturalization Act of 1798. The laws are analyzed in the context of the important social-cultural or political factors that spurred the creation of these laws in the first place. After analyzing past immigration laws, this study also examines the most recent changes in immigration, along with the new proposition that President Obama is currently attempting to pass in 2013. Although many factors have influenced immigration policy, this research argues that changes in the US economy is the factor that exerts the most influence on immigration laws. In conclusion, ideas for assisting the creation and enforcement of future immigration policy are proposed based upon the context of the research findings.

431 Auditorium 1:30-2:15 Board 2A
Matthew C Catizone
Sarah Moffatt
Brian Schaffner (Faculty Sponsor)
Department of Political Science, UMass Amherst
Public Opinion and Perceptions of Campaign Spending

How does the American public understand and interpret the amount of money spent on federal campaigns, and
what factors impact their support for limiting campaign spending? Our research sheds light on public perceptions of presidential campaign spending following the spending large increase in expenditures in the wake of Citizens United. As illustrated in our findings, most people prefer limiting the spending on campaigns, yet because it is such a recent phenomenon little research has been done on the topic. Our research was conducted utilizing the 2012 UMass exit poll created and executed by students in the Political Polling and Survey Research course. On Election Day, our class collected thousands of responses from voters across the Commonwealth at a variety of randomly selected precincts. We then compiled and analyzed the data using the STATA statistical program. The exit poll format allowed us to analyze our results using a wide variety of demographic and political variables. We found that regardless of these variables, the Massachusetts voters are extremely supportive of the implementation of campaign spending limits (>90% support). Further, we uncovered fascinating patterns in public perceptions of spending, particularly along gender lines. Specifically, we asked respondents to estimate how much money was spent on the 2012 presidential campaign. We found clear differences in perceptions of spending along class, race, and gender lines.

432 Auditorium 3:30-4:15 Board 38A
Kerry Tretola
Michael Baum (Faculty Sponsor)
Department of Political Science, UMass Dartmouth
Comparative Analysis of Higher Education Funding and it’s Effect on Attitudes Towards and Values of Education in the U.S., Portugal, and Finland

American college students are being forced to undertake a massive amount of debt while trying to earn their degree that is becoming increasingly necessary in today’s world. This gross injustice is even more shocking when comparing U.S. funding for higher education to European countries. The various economic systems of the world fund higher education systems differently and these various systems can be seen through the study of the United States, Portugal, and Finland. In a comparative case study analysis of higher education funding, it is also important to understand how various countries structure their higher education system, the number of years taken to earn a degree, program requirements, admission standards, and cost of education because in most advanced democracies stakeholders are becoming increasingly concerned about measures of efficiency and value. Looking at the economic systems of these three countries, their tax systems, and social welfare systems will help to explain the countries’ system of funding and its effect on educational outcomes and attitudes toward higher education. Through the research of peer reviewed journal articles, surveys and assessments of educational outcomes, cultural attitudes, and values of education the comparative analysis of higher education funding can shed light on which models provide the best outcomes for the least expense. This study shows whether or not attitudes toward and values of education are affected by how higher education is funded.

PSYCHOLOGY

433 Concourse 11:35-12:20 Board 57C
Francis I Rick
Jessica Ahern
Anna Flanagan (Faculty Sponsor)
Department of Psychology, Framingham State University
The Effects of Profile Owner’s Attractiveness and Friends’ Attractiveness on Perceptions of Trust and Social Desirability on Facebook

This study is designed to examine the effects of a Facebook profile owner’s attractiveness and the owner’s friends’ attractiveness on the perceived social desirability and trustworthiness of the profile owner. Undergraduate students from a small state university (N=180) will be randomly assigned to view one of six mock Facebook profiles, which varies in the owner’s attractiveness (attractive, unattractive, or moderately attractive) and the attractiveness of her friends (attractive or unattractive). Participants will then complete a social desirability scale, a trustworthiness scale, a Facebook usage questionnaire, and a basic demographics section. It is expected that attractive profile owners will be rated as more socially desirable but less trustworthy than unattractive profile owners. It is also anticipated that profile owners with unattractive friends will be considered both less socially desirable and less trustworthy than owners with attractive friends. Lastly, it is expected that moderately attractive profile owners with attractive friends will be perceived as the most trustworthy while unattractive profile owners with unattractive friends will be perceived as the
least socially desirable. The findings of this study could greatly contribute to the current understanding of the effects of attractiveness on impression formation in online social networks.

**434 Concourse 11:35-12:20 Board 52C**

Angela Arena  
Paul Galvin (Faculty Sponsor)  
Department of Psychology, Framingham State University  
**The Influence of Mood Awareness on Local-Global Visual Processing**  

The influence of mood and manipulation awareness on a local-global visual processing task was explored by conducting a true experiment. Participants were 29 undergraduate students who were shown images to induce either a positive or negative mood. They then completed a visual perception task, consisting of 16 sets, in which they were presented two figures and had to choose which one most resembled the target figure shown. A two-way between-group analysis of variance was conducted and revealed no significant main effects. A significant interaction was found between mood and awareness suggesting that moods effect on task performance was intensified with awareness.

**435 Auditorium 3:30-4:15 Board 42A**

Katie Ashworth  
Mary Zahm (Faculty Sponsor)  
Department of Psychology, Bristol Community College  
**How can students’ learning style preferences and associated strengths impact their performance in college courses?**

In this presentation, information gleaned from the review of the scholarly psychological and educational literature on adult learning styles and how they can impact college students’ learning of new material will be shared. The research questions addressed were: What are the adult learning styles and associated strengths that have been identified by researchers? What are the pros and cons that researchers have identified of relying on one’s preferred style(s) to learn new material? What tools are available online that students can use to identify their learning style preferences and associated strengths? How can students use their strengths to become more efficient learners? A packet containing information gleaned from this research that was produced and shared with peers to increase their awareness about learning style preferences, associated strengths and effective strategies they can use to learn different types of information in college courses will be described.

**436 Concourse 3:30-4:15 Board 61C**

Folake Afolayan  
Jada Evans  
Sarah Augustine  
Ester Shapiro (Faculty Sponsor)  
Department of Psychology, UMass Boston  
**Black Women and Beauty: Understanding the impacts of mainstream beauty standards on Black women and the role of ethnic identity as a protective factor**

Attractiveness ideals of many women in the United States are greatly influenced by beauty standards communicated through various channels (e.g. media, family, and peers) (Rogers & Petrie, 2010; Chin-Evans & McConnell, 2003). While research has documented negative impacts on body image among women, little work has specifically focused on consequences for Black women who may be uniquely impacted since beauty ideals are often based on white women’s physical features (e.g. fair skin, long straight hair) that are unattainable for many Black women. Some have called for attention to beauty standards extending beyond body type and shape (Jefferson and Stake, 2009; Hall 1995) as anecdotal evidence and qualitative research has documented that mainstream beauty standards have implications for Black women’s attractiveness ideals (Bellinger, 2007; Robinson-Moore, 2008). Black women in the U.S. are both unconsciously and consciously exposed to mainstream beauty standards represented through White models, as well as the majority of Black women portrayed in the media, who most often possess Eurocentric features. However, little systematic research has explored impacts and ways of protecting Black women from these impacts. Using data from a larger study, this research will examine whether exposure to mainstream beauty standards impacts Black women’s self-perceived attractiveness and also will examine whether ethnic identity levels mitigate the impact. Participants will be exposed to advertisements featuring attractive Black models possessing Eurocentric features. Additionally, the study will use a content analysis of open ended questions to examine the sources and types of messages that U.S. born Black
women received about skin color and hair texture and the impacts on their self-image and attractiveness ideals. The study background, methods, and design will be presented as a work-in-progress.

**437 Concourse 11:35-12:20 Board 53C**
Megan M Carreiro
Alexander Avery
Cynthia A. Prehar (Faculty Sponsor)
Department of Psychology and Philosophy, Framingham State University

**Narcissism and Self-Esteem in Relation to Facebook Use**

The present study investigated the relationships between narcissism, self-esteem, and Facebook use. Based on the findings of Mehdizadeh (2010) and Kalpidou, Costin, and Morris (2011), we predicted that time spent on Facebook and self-esteem would negatively correlate. In contrast, a positive correlation was expected between Facebook use and narcissism based on the results of Buffardi and Campbell (2008), Mehdizadeh (2010), and Ryan and Xenos (2011). Participants were 196 undergraduate students from Framingham State University. After providing their informed consent, the students completed an anonymous survey including measures of Facebook usage, narcissism, and self-esteem. As expected, lower self-esteem related to more time spent on Facebook (p < .01). On the other hand, no relationship was found between narcissism and Facebook use (p = .49). These findings were inconsistent with Buffardi and Campbell (2008), Mehdizadeh (2010), and Ryan and Xenos (2011). The inconsistency could be due to our narcissism questions not being reversed.

**438 Concourse 11:35-12:20 Board 62C**
Kelly-Ann Brophy
Paul Galvin (Faculty Sponsor)
Department of Psychology, Framingham State University

**Perceptions of Emotional Abuse**

Emotional abuse is something that can affect the lives of everyone involved, including the friends of the abused. The purpose of this study was to examine the threshold of the victims’ friends, and when they were most likely to intervene and help their female friend in an emotionally abusive relationship. Participants included 146 college students between the ages of 18 and 44. The higher the results, the more likely the friend is willing to step in, which is dependent on which of the three scenarios (mild emotional abuse, moderate emotional abuse and high emotional abuse) the participant received. This study found a significant difference between the three scenarios given to participants, and how the scenarios were viewed. Participants found with an internal locus of control did not have a significant difference between those that were found with an external locus of control in their perceptions of abuse. Those with an internal locus of control perceived abuse higher than those with an external locus of control. There was also a clear significance found between those participants in a relationship, and how they would be more likely to intervene.

**439 Concourse 11:35-12:20 Board 55C**
Angela M DiBenedetto
Danielle Brown
Paul Galvin (Faculty Sponsor)
Department of Psychology, Framingham State University

**Psychophysiological Effects of Lying**

The purpose of this study was to investigate the psychophysiological effects of lying to others and being lied to. This study examined if there was a change in the electrodermal activity, respiration rate, and heart rate of participants while writing, telling and listening to truths and lies. Fifteen undergraduate men and women participated in this study. Participants were connected to a psychophysiological machine for data analysis while baseline and study measurements were conducted. Participants completed three sets of simple tasks during the baseline measurements including saying their name, counting backwards and answering directed questions. The study measurements consisted of participants writing both a truthful and untruthful short story. These stories were then shared with a confederate who acted as a participant. The confederate shared both a truthful and untruthful story created from the same writing prompt as the participant. There were no significant findings in all areas of study. Furthermore, this study added a new methodology for investigating the physiological effects of several aspects of deception into one study.
**440 Concourse 11:35-12:20 Board 50C**
Shannon Cargill  
Regina Yaroch (Faculty Sponsor)  
Department of Communication, Cape Cod Community College  
The Everyday Patron and His/Her Barkeep: A Relationship Built on False Intimacy?

This research paper will examine the relationship between a person and his/her barkeep and the intimacy that occurs during their time together, whether frequent or infrequent. Not only will I look at the intimacy between the two, I will also examine if this relationship is one-sided. Is the intimacy and self-disclosure mutual and sequential or is the patron the one doing all the sharing? Another aspect being researched is the people themselves. Is there a certain kind of person who ends up becoming intimate with their server? Are there certain attributes that make one more likely to open up to what some might think of as stranger? Also, are there specific characteristics that most bartenders and servers hold that brings them into this business and make them stick around. Throughout this research paper I will touch upon the behaviors and traits of all parties, breakdown the relationship in an effort to define it, and look at self-disclosure on many levels. What is it about the setting that gives people the freedom to open up to others they barely know? Are they lacking intimacy elsewhere in their lives? Are the certain types of bars that make it much easier for people to open up? Such as the local, neighborhood pub compared to a chain restaurant/bar? With the help of studies, the use of my own experiences and my colleagues, plus analysis, I will be able to form a good picture of the relationship created and the people involved.

**441 Concourse 3:30-4:15 Board 69C**
Vanessa Carney  
Brian Ayotte (Faculty Sponsor)  
Department of Psychology, UMass Dartmouth  
Friendship and Perceived Team Cohesiveness Among College Athletes

There are many different sources of cohesion within athletic teams. This study examined the relationships among type of team (interacting versus co-acting), friendship networks, and perceived team cohesiveness among male undergraduate athletes. The following hypotheses were tested: (a) athletes on the interacting teams (e.g., basketball) would have a higher percentage of friends from the team than the athletes on the co-acting teams (e.g., tennis), (b) having more friendships with teammates is related to increased cohesiveness, and (c) higher amounts of conflict is related to decreased cohesion. The sample consisted of male athletic teams from UMASS Dartmouth who were surveyed using a questionnaire and then asked to voluntarily participate in individual interviews following the completion of the survey. The quantitative data was analyzed by using an ANOVA analysis, while content analysis was used for the qualitative interviews. Results are discussed in the context of how to develop strategies that increase team/group cohesiveness among different types of groups.

**442 Concourse 11:35-12:20 Board 54C**
Victoria R Gagnon  
Ashley Chadwick  
Anna Flanagan (Faculty Sponsor)  
Department of Psychology, Framingham State University  
Perceived Effects of Parenting and Romantic Attachment Styles on Academic Motivation, Coping, and Stress

This study will examine college students’ perceptions of academic motivation, coping, and stress based on a scenario character’s parenting and romantic attachment style. Participants will be 270 students on a college campus, the majority of whom will be Caucasian women. Participants will be randomly given one of nine scenarios depicting a female character with one type of parenting style (authoritative, authoritarian, or neglectful) and one type of romantic attachment style (secure, dismissing, or preoccupied). Participants will complete an academic self-efficacy scale, a coping self-efficacy scale, a perceived stress scale and then complete a demographics questionnaire. Results are expected to show that the scenario characters with authoritative parenting and/or secure attachment will be perceived to have significantly higher academic motivation and coping ability but significantly lower stress than the other parenting and attachment style characters. The findings could suggest how past parenting style and current romantic
attachment style are perceived to affect the current functioning of an individual.

443 Auditorium 3:30-4:15 Board 46A
Lauren Colbert
Paul Galvin (Faculty Sponsor)
Department of Psychology, Framingham State University
Sex and Stress

Everyone experiences stress on some level and everyone copes with stress in different ways. The current study looked at whether people use sexual activities, especially high risk sexual behaviors, to relieve stress. Participants were 144 college students aged 18 to 27. Participants were placed in either a low or high level stress situation and then asked to rate how likely it was that they would engage in sexual activity with a stranger, an ex and a classmate. A significant difference was found between an ex and a stranger, as well as a classmate and a stranger, but not between an ex and a classmate. It was also found that when placed in a high level stress situation, participants were more likely to engage in sexual behavior with an ex than a stranger. There was a clear significance between number of sexual partners and report of sexual activity with a stranger and a classmate.

444 Auditorium 3:30-4:15 Board 47A
Elisa Considine
Paul Galvin (Faculty Sponsor)
Department of Psychology, Framingham State University
Scholarships for Ecuador

People living in underprivileged countries typically have many hardships surrounding the attainment of money. These people suffer because they do not have the means to further their education, but the world that is in need of diverse opinions also suffers by missing out. That is why working with the nonprofit group, Alliance for Cultural and Economic Exchange, Inc., and educating people on the poverties that some face, can help those individuals who are in poverty, as well as to help combine the diverse opinions of the world. Ecuador is the country of focus for this topic. Money needs to be attained and distributed in the form of a scholarship to the young people of Ecuador. A background of the country of Ecuador will be focused on to give readers an understanding of the situation that citizens of that country are faced with. The answer to the problem of imbalance in currency between countries is up to the citizens of more privileged regions. People must take action in order to improve conditions for the entire human race.

445 Concourse 2:30-3:15 Board 51C
Micaela Curley
Tiffany Donaldson (Faculty Sponsor)
Department of Psychology, UMass Boston
How do People Understand Ethnicity?

Ethnicity relates to a sense of similarity among a community in terms of ancestral or geographical descent in combination with cultural systems such as morals, values, beliefs, religion, language, traditions, or views of the world (Pinderhughes, 1989; Omni & Winant, 1994; Suyemoto, 2002; McGoldrick & Garcia-Petro, 2005; Markus, 2008). However, ethnicity is frequently confounded with race, affecting research utilizing this variable. Little research exists concerning how the average person understands ethnicity. How individuals conceptualize ethnicity affects interactions and perceptions of themselves, others, and society across racial and ethnic groups. This study interpreted how individuals conceptualize ethnicity via an online survey. The sample consisted of 53 male and 87 female participants. Participants were asked, “What does ethnicity mean to you?” Participants’ self-identified race and ethnicity consisted of 64.3% White (n=90), 10.7% Asian (n=15), 9.3% Multiracial (n=13), 7.9% Black (n=11), 7.1% Latino/a (n=10) and 47.1% European American (n=66), 15% Other (n=21), 13.6% Multiethnic (n=19), 11.4% Asian American (n=16), 7.1% Hispanic/Latino(a) (n=10), and 5.7% African American (n=8). A qualitative thematic content analysis informed by the Consensual Qualitative Research method (Hill, 1997; Hill, 2005) was utilized. A codebook was developed, where team members discussed, refined, and distinguished each code and meaning. Major themes that emerged from the data are currently being developed and organized with subcategories around content, function, and process domains. These specific results will be presented and implications for the validity of the construct in research will be discussed.
Presenters

446 Concourse 1:30-2:15 Board 70C
Elise DePlanche
Elizabeth Richardson (Faculty Sponsor)
Department of Psychology, UMass Dartmouth
Impact of Religious Organizations’ Activities, Spiritual Growth, and Organizational Climate on Young Adults’ Religious Involvement and Group Satisfaction

Religious organizations provide social networks, coping mechanisms, and hope for the future for many Americans. Young adults question the beliefs of their childhood (Arnett, 2004), and resultantly have decreased levels of religiosity and church attendance from adolescence (Koenig, McGue, & Iacono, 2008; Arnett 2010; Smith 2009). Although documented for decades (Smith, 2009), little work has been done on how this decline might be abated or reversed. This study sought to understand aspects of religious organizations that impacted young adults’ religious involvement, focusing on three factors that previous studies had tentatively related to religious involvement: the types of activities run by an organization, organizational climate, and spiritual growth. Eighty-seven university students were surveyed and 34 interviewed on their involvement in a religious organization. The results showed spiritual growth was positively associated with overall satisfaction and average attendance. Positive organizational climates were positively associated with satisfaction, desired involvement, attendance importance, and spiritual growth. Positive climates were not associated with the attendance of most event types, or with participants’ roles in their organizations. Negative climates did not have effects as extensive as those of positive climates. The types of events participants attended were not associated with spiritual growth, role in the organization, desired involvement, or any type of satisfaction except with prayer events. However, social, lecture, and textual study events were positively associated with average attendance, and social and lecture events were positively related to attendance importance. Inter-faith differences were explored through quantitative and qualitative analysis, and directions for future research were discussed.

447 Auditorium 1:30-2:15 Board 61C
Lauren DiCredico
Chris Schoen (Faculty Sponsor)
Department of Psychology, Salem State University
The Psychosocial Aspects of Athletic Training

Often student athletes utilize sport psychology techniques to help them develop mental skills for improving performance as well as for coping with emotional setbacks experienced when physical injuries remove them from sport participation. Sport Psychologists unfortunately still contend with negative associations some athletes have with their treatment. Athletic trainers, who work with these athletes and teams from day one of preseason, are in a much better position to implement various psychological skills and help athletes work through both the physical pain and mental challenges that could otherwise hold them back from competition following injury. And while athletic training accrediting bodies stipulate Athletic Training Students demonstrate competencies with sport psychology techniques, many university programs do not have specially designed courses for them to take. This study implemented three, one hour, workshops into ATS’ class time covering psychological skills and counseling techniques. A survey was administered to assess ATS’s predisposition regarding opinions and exposure of sport psychology, whether or not they have taught sport psychology skills when working with athletes, and if they felt more comprehensive training should be incorporated into their already full curriculum. After a period of 6 weeks a second administration of the same survey will be given to the ATS using a repeated measures, pretest posttest analysis to gauge how much the 32 students opinions and use of sport psychology techniques with their athletes changed before and after the workshop. We also were looking to see if they were more likely to seek out more information or a referral to a sport psychology specialist after the workshop, and if they felt more comfortable with the material. Results will be discussed as they pertain to how and when sport psychology training can be added to their curriculum.

448 Concourse 3:30-4:15 Board 57C
Robert Farmer III
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Dreams and Waking Life
Dreams seamlessly mix with the daily life of us all. In fact, many inventions and discoveries are actually the result of this occurrence such as the sowing machine, and the benzene ring. Dreams are an intricate occurrence that may begin earlier than we’re even aware. Studies have shown that in the fetal stage of certain animals, signs of dreams can be found. When we’re born and as we grow we gain the ability to remember our dreams. It would seem that our earliest dreams link to, and portray our lack of self-control. This is done through the usage of wild creatures and vibrant colors in our initial dreams. As we mature infancy to childhood there’s possibility of our dreams manifesting themselves in the form of night terrors which also give evidence of our lack of awareness. As we further develop we are able to escape the horrors of night terrors As we further progress into our teenage years, another entirely separate phenomenon occurs while in our sleeping state in the form of nocturnal emissions more commonly called “wet dreams”. These dreams, caused by a buildup of hormones, have a number of varying side effects attached to them. There are so many different classifications of sleep, and each one connects to our waking mind in a different way. So many things happen to us while we sleep; solidification of memories, regeneration of cells, the working out of problems, all of which connect to what we go through in our active state.

**449 Concourse 11:35-12:20 Board 59C**
Deanna J Greco  
Loren Ferreira  
Anna Flanagan (Faculty Sponsor)  
Department of Psychology, Framingham State University  
Perceived Effects of Sex of Victim and Type of Childhood Abuse on Relationship Satisfaction and Self-Esteem

This study will examine college students’ perceptions of the effects of childhood abuse and sex of the victim on romantic relationship satisfaction and self-esteem. Undergraduates (N=180) will be randomly assigned to read one of six scenarios describing a male or female college senior who experienced physical, sexual, or emotional abuse in their childhoods. Based on previous literature, it is predicted that scenario characters with past emotional abuse will be perceived to have the lowest self-esteem scores, and scenario characters with past sexual abuse will be perceived to have the lowest relationship satisfaction scores. It is also predicted that, overall, women will be perceived to have lower self-esteem and relationship satisfaction scores than men. Participants with histories of childhood abuse are also predicted to report lower romantic relationship satisfaction than participants with no history of abuse. Results from this study will be beneficial to mental health and trauma professionals to better understand the long-term effects of different types of childhood abuse.

**450 Concourse 2:30-3:15 Board 68C**
Margaux Flood  
Rachel Farr (Faculty Sponsor)  
Department of Psychology, UMass Amherst  
How Siblings and Birth Family Contact Affect Mental Health Outcomes in Adult Adoptees

Research demonstrates that siblings are influential throughout the lifespan (McHale et al., 2012). Among adopted siblings, Berge et al. (2006) found that adolescent adoptees’ birth family contact is impacted by sibling relationships. The purpose here was to examine how sibling dynamics related to birth family contact affect adoptees’ behavioral outcomes in emerging adulthood. We investigated behavioral adjustment among adult adoptees (Mage = 25) from 26 sibling sets (29 female, 23 male; 15 same-sex, 11 other-sex pairs) ranging in birth family contact (i.e., both, one, neither with contact). Participants were from the Minnesota-Texas Adoption Research Project recruited from 35 domestic agencies in 23 states (Grotevant & McRoy, 1998). Participants completed the Adult Self Report (Achenbach, 2003) and were interviewed via online chat sessions. Results indicated that differences in contact – specifically discrepancies in contact between siblings – significantly affected adoptees’ behavioral outcomes, F(3, 21) = 3.23, p = .043. Internalizing behaviors were greater for adoptees who did not have birth family contact but their sibling did (M = 58.75, SD = 11.96), while internalizing behaviors were fewer for adoptees who had contact but their siblings did not (M = 40.6, SD = 10.52). In contrast, differences were not found when siblings both had contact or neither had contact. Overall, these findings highlight how siblings influence developmental outcomes into adulthood in adoptive families. Discrepancies in birth family contact between siblings led to differences in adoptees’ internalizing problems, such as depression and anxiety – results with important implications for adoptive families, clinicians, and other adoption professionals.
Some adoptees in confidential adoptions have incomplete adoption narratives because they have little or no information about their birth parents and the reasons why they were placed for adoption. These narratives occasionally contain negative self-statements that include feelings of being unloved, unwanted, and abandoned by their birth parents. As a result, adoptees can be less inclined to acknowledge their adoption as a part of their identity. Religion and spirituality help many people find meaning in their lives and self-worth. For adoptees in confidential adoptions, how is their level of religiosity/spirituality associated with the integration of adoption into their identity? This study examines data from 43 adoptees, interviewed twice (adolescence and young adulthood) about their religious/spiritual beliefs and their sense of self as an adopted person (adoptive identity). Two hypotheses will be tested: depth of religious/spiritual commitment (coded from the religious identity interview) is associated with A) positive affect about one’s own adoption (measured by the Adoption Dynamics Questionnaire) and B) openness to communicating about adoption with other people (coded from the adoptive identity interview). For this mixed methods study, correlational and chi-square analyses will be used to test the hypotheses, and quotes from the interviews will illustrate the findings. Preliminary results suggest that many adoptees with high levels of religiosity/spirituality believe that their adoption was all a part of God’s plan— that God placed them in their adoptive families for a purpose.

Gender identity is frequently expressed as a dichotomy; most commonly on official forms and in everyday social contexts, a person has options to identify as being either male or female. Some research explores gender on a continuum, with additional identity options, but this research is limited as it tends toward assignment of labels and does not explore how people view their own identity. The present study promotes the concept and explores the dimensions of gender on a continuum so that people may freely identify themselves in a variety of ways. This mixed method study includes self-administered surveys and semi-structured interviews to explain and describe how respondents self-report their own gender identities. Analysis of data includes content analysis of interview narratives and marking significant variables in the identification of gender toward development of a gender-fluid continuum. In doing so, this research aims to produce an inclusive understanding of gender identity, which allows for more options for self-identifying than “100% male” and “100% female.”

Social Comparison Theory (Festinger, 1954) states that everyone has a tendency to assess and evaluate their abilities based on comparisons with others. Corning, Krumm, and Smithams (2006) looked at the impact of social comparison on women and found that women who were more likely to engage in social comparison were more likely to have an eating disorder symptom. This suggests that social comparison may be a mechanism by which women feel pressured to conform into an idealized body type. The present study will investigate whether there is a relationship between the tendency to engage in social comparison (and to believe in such comparison as a legitimate source of information about oneself) and the degree to which female college students display distortions of body image and body dissatisfaction. We hypothesize that there is a relationship between the degree to which female college students engage in social comparison and the degree of their body distortion. Preliminary results support our hypothesis.
Greater social comparison is associated with higher levels of body distortion. This relationship holds after controlling for participant age and body mass index (BMI).

454 Concourse 3:30-4:15 Board 66C
Yvette Graveline
Rebecca Spencer (Faculty Sponsor)
Department of Psychology, UMass Amherst
The Effects of Sleep on Temporal-Spatial Sequence Learning

Sleep benefits memory consolidation. One form of memory known to benefit from sleep is spatial sequence learning. Little attention has been paid to how sleep affects temporal sequence learning. The purpose of this study is to investigate the effects of sleep on implicit temporal sequence learning, specifically in a spatial context. Four groups of 20 healthy, right-handed young adults between ages 18-30 will learn to integrate a spatial and temporal sequence using the Serial Reaction Time Task (Nissen & Bullemer, 1987). The Wake group will learn the task in the morning and subjects’ sequence knowledge will be tested following 12 hrs of time spent awake. The Sleep group will learn the task in the evening and subjects’ sequence knowledge will be tested following 12 hrs of sleep. Throughout the experiment subjects will use the right hand only. In two additional groups, subjects will learn the sequence with the right hand and switch to the left for the second part of the experiment. This condition is known as the effector transfer condition. It measures whether or not an effector-independent representation of sequence learning has developed. I hypothesize that sleep will benefit implicit temporal-spatial sequence learning, that temporal-spatial sequence learning has an effector-independent representation, and that this representation will benefit from a night of sleep.

455 Concourse 2:30-3:15 Board 50C
Michelle Hien
Maureen Perry-Jenkins (Faculty Sponsor)
Department of Psychology, UMass Amherst
Workplace Policies and the Mental Health of Low-Income, Working Mothers

PURPOSE: Research indicates that workplace policies can positively affect working parents’ stress levels, health status, job satisfaction, retention rates, and sense of well-being (Perry-Jenkins et al., 2012); however, we know little about the importance of work policies for low-income workers. The current study fills an important gap in the literature by examining the availability and use of supportive workplace policies for a sample of low-income, employed new mothers. In addition, this study examines the relationship between workplace policies and maternal mental health. Specifically, analyses explore how workplace supports like parental leave, schedule flexibility, and child-care policies are related to employed mothers’ anxiety and depressive symptoms across the first year of parenthood. METHODS: Data from the Work and Family Transitions Project, a longitudinal study of 207 employed mothers across the first year of parenthood, will be used. At the time of recruitment, all mothers were employed in low-wage jobs such as nursing aides or food service workers. Mothers completed questionnaires assessing the types of work policies they had access to as well as self-reported measures of mental health. Data about workplace benefits and policies available to mothers when they returned to work after giving birth (Time 1, approximately 12-weeks postpartum) were used to predict mothers’ depressive symptoms and anxiety one year postpartum (Time 2). RESULTS: Results indicated that the mothers received an average of 9.56 weeks of maternity leave; the majority of this was unpaid leave. Just over half of mothers, 53.5%, reported having some flexibility at work allowing them to take time off for a doctor’s appointment or to leave to pick up an ill child. Of the mothers who had this type of flexibility, 89.9% reported using it. Less than 20% of mothers reported having access to other policies such as: 1) option to work at home (8.3%), 2) child care referral (15.4%), 3) vouchers or contributions to child care (4%), 4) child care center at the workplace (9.2%), 5) employer subsidized child care near their workplace (4.2%), 6) part-time work with benefits (16%), or 7) flextime schedules (9%). CONCLUSION: Results indicate that low-income, working mothers have little support from their workplaces during the transition to parenthood. Further analyses will examine the direct effects of minimal workplace policies on the depressive symptoms and anxiety of these low-income mothers.

456 Concourse 11:35-12:20 Board 61C
Jeein Kang
Michelle Wolfson (Faculty Sponsor)
Department of Psychology, Cape Cod Community College
Differences in perceptions of mental illness related to living with mentally ill family member

Research notes that a family member with a chronic mental disorder has an impact on others in the family (Maurin, 1990, Yarrow, 1955, Farina, 1965). Many theories including interpersonal theory, narrative theory, and symbolic interactionism theory are approaches that focus on the role of perception and interpersonal relationships (Sullivan, 1968, Bruner, 1991, Blumer, 1969). Drawing on understanding from these theoretical perspectives, this study will examine how the experience of living with a family member diagnosed with mental illness, affects the perception of mental illness by other family members and the interactions between them. Specifically, this research will focus on families living with a family member diagnosed with chronic mental disorders such as schizophrenia, depression, or cognitive developmental delays. Supporting evidence will be provided through a review of relevant literature and psychological case studies.

457 Concourse 11:35-12:20 Board 51C
Ashley Chadwick
Stephanie Langer
Anna Flanagan (Faculty Sponsor)
Department of Psychology, Framingham State University
Learning/Behavioral Disorders and Academic Motivation and Performance

This study examined college students’ perceptions of academic motivation and performance of male and female scenario characters that had either ADHD or OCD. Participants were 83 undergraduate students with a mean age of 20.59 years and a mean cumulative grade point average of 3.24. The majority of participants were Caucasian women, and reported some familiarity with ADHD, OCD, or both disorders. Participants were randomly given one of four scenarios to read that depicted a male or female character with either ADHD or OCD. To measure academic motivation and performance, participants completed a self-efficacy scale and estimated the scenario character’s GPA. They also completed a short demographics questionnaire. Results showed that the characters with ADHD were perceived to have significantly lower academic motivation and academic performance than the characters with OCD. The findings suggest that OCD may not be as easily associated with deficits in academic motivation and performance as ADHD. The implications of this perception, as well as possible influences on awareness and education about these disorders, will be discussed.

458 Concourse 2:30-3:15 Board 69C
Gina Lapriore
Seth Surgan (Faculty Sponsor)
Department of Psychology, Worcester State University
The truth about lying

Recent research suggests that, despite our everyday exposure to lies and lying, people do not excel at detecting lies. Vrij and Mann (2001) found that their participants were better at detecting true statements (70% accuracy) than lies (57% accuracy). This study investigates how people draw conclusions about the truth (or falsity) of statements in order to understand why we seem to have a hard time identifying when people are lying to us. The goals of this study are: 1) to describe common physical cues that people use to discern lies from the truth and 2) to determine if there is an association between the use of specific types of physical cues and accuracy of lie- and truth-detection. Participants watched a video of people playing a card game in which players make claims about the cards they hold. After each player’s turn participants were asked to complete a response sheet indicating whether the player’s statement is the truth or a lie and how they came to that conclusion. Qualitative data will be analyzed using a grounded theory approach to develop concepts that describe the types of cues, information, and knowledge that participants draw upon when making their conclusions. We will use basic descriptive statistics to determine what lie- and truth-detection strategies are most common and a set of chi-square tests to assess if there is an association between the use of certain cues and accurate lie detection and truth detection.

459 Concourse 11:35-12:20 Board 58C
Stephanie A Langer
Jessica Latini
Anna Flanagan (Faculty Sponsor)
Department of Psychology, Framingham State University
Perceived Effects of Victim Attire and Intoxication Level on Blame and Forgiveness in Sexual Assault Situations

This study will examine the perceived effects of victim attire and intoxication level on blame attributed to the victim and forgiveness of the assailant in sexual assault situations. A questionnaire packet is to be completed by at least 180 participants solicited at a small public university. Each participant will be randomly assigned to read one of six scenarios depicting a sexual assault in which the victim’s attire and level of intoxication are varied. The victim will be dressed either provocatively (mini skirt, tube top, and high heels) or not provocatively (short-sleeved t-shirt, jeans, and flip-flops) and portrayed as sober (soda), buzzed (three shots), or drunk (five shots). Participants will also fill out a rape myth scale and a short demographics questionnaire. It is predicted that the victims who were drunk and dressed provocatively would be attributed more blame than victims who were sober and not dressed provocatively. It is also expected that victims who were drunk and dressed provocatively would be perceived as more likely to forgive the assailant than victims who were sober and not dressed provocatively. This study may provide more insights into what factors in a sexual assault situation might influence both an individual’s blame attribution and the likelihood of forgiveness. This information would be useful for law enforcement, juror-based trials, and prevention programs.

460  Concourse 3:30-4:15 Board 70C
Yaeeun Lee
Bonnie Strickland (Faculty Sponsor)
Department of Psychology, UMass Amherst
The Etiology and Treatments of Eating Disorders

Among the various mental illnesses, eating disorders present a significant threat to the community with its high mortality rate, tendency to be chronic, and resistance to recovery and treatment. Although there are three recognized forms of eating disorders, the illness is generally characterized by obsession with weight loss, low self-esteem, abnormal eating habits, and self-evaluation based on physical appearance. There are a variety of treatments available for eating disorders; empirical research supports the use of cognitive behavioral therapy for treating bulimia nervosa and the use of family therapy for anorexia nervosa. However, there is no guarantee of success in any treatment plans, rather high rates of relapse and withdrawal persist despite development in the field of eating disorders. The various types of therapy offered for treatment are discussed, as well as their efficacy and related issues. Directions for further research are also discussed.

461  Concourse 2:30-3:15 Board 65C
Elizabeth Lozano
Mahzad Hojjat (Faculty Sponsor)
Department of Psychology, UMass Dartmouth
Ego-Resilience and Friendship Maintenance

Ego Resiliency (ER) is defined as “resourceful adaptation to changing circumstances and environmental contingencies” (Block & Block, 1980). Many enhanced outcomes in social functioning have been traced to this construct, but the real question is whether ego-resilience predicts improved relations with others. Perhaps psychological resiliency serves as a protective factor to the quality of a relationship and its enduring maintenance. This seems plausible, considering that high ER individuals are flexible in adapting to life stressors. Therefore, the main goal of this study is to investigate whether ego-resilience leads to beneficial outcomes in personal relationships, specifically in the context of friendships. Participants were 141 young adults (49% female, 50% male) between the ages of 18 and 33, who completed a series of measures assessing: (a) self-reported closeness and duration of six past or present friendships, (b) friendship maintenance behaviors (Oswald et al., 2004), (c) social provisions (Cutrona & Russell, 1987), (d) socially supportive behaviors (Barrera et al., 1981), (e) positive and negative affect (Watson, Clark, & Tellegen, 1988), and (f) ego-resilience (Alessandri et al., 2008; Smith et al., 2008). A mediation model will be performed to assess whether positive affect mediates the proposed relationship between ego-resilience and enhanced friendship outcomes (i.e., greater closeness, social support, etc). It is hoped that the present study would help us better understand the impact of resilience and positive emotions on friendships.

462  Concourse 11:35-12:20 Board 60C
Renata Macedo
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
The Effects of Alcohol and other Drugs on Intimate Relationships

Alcohol, among other drugs, brings the human mind to an altered state of consciousness. Being under the influence has also been correlated with stimulating sexual appetite. About 80 percent of today’s first sexual experiences occur under the influence of alcohol. This research will explore this behavior and look further into the relationship between sex, alcohol and adolescence in contemporary America. It will specifically focus on the emerging generation of high school and college students and ask how relational development is affected after a drunken “hook-up”. I will also try to put in perspective why teens get drunk to have sex.

463 Concourse 2:30-3:15 Board 53C
Molly McCarthy
Trina Kershaw (Faculty Sponsor)
Department of Psychology, UMass Dartmouth
The Effects of Priming on Past Tense Novel Verb Production

The cognitive mechanisms underlying language production are thought to be illustrated by how people produce the past tense forms of regular and irregular verbs. Contemporary theories disagree as to how this is done. Dual-route models stress the importance of a grammatical rule for regular past tense production, with a lexical retrieval mechanism for irregular verbs. Single-route models doubt the necessity of a grammatical rule, suggesting a comprehensive connectionist model that is used for both regular and irregular conjugation. The present study tests these models using updated methods from previous research. In the first experiment, participants were asked to produce the past tense forms of a novel verb. The purpose was to test the effect of semantic context of the passages and the form of the real verbs in the passages on verb production. Semantic context was found to influence verb production; participants produced fewer regular verbs in those passages with an irregular semantic context. A second experiment was run in order to test the effects of the same passages on participants’ naturalness ratings of a given novel verb form. Overall, participants rated regular verbs more naturally, but once again those passages with a semantic context cancelled out this preference. Neither experiment was able to replicate previous findings, suggesting a potential bias in past methods. Results were inconclusive; support was found for different predictions of both models.

464 Concourse 3:30-4:15 Board 62C
Stephanie McCluskey
Sara Levine (Faculty Sponsor)
Department of Psychology, Fitchburg State University
Personality Characteristics and Infidelity in College Students

This research investigated whether specific personality traits and qualities in a romantic relationship predicted infidelity in college students at Fitchburg State University. Students completed an online survey in which they were asked questions regarding their beliefs on infidelity, and were assessed using the Big Five Inventory, the Investment Model, and the Infidelity Scale. The Big Five personality traits consist of Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (John, Donahue, & Kentle, 1991). It was hypothesized that students with higher scores in neuroticism would be more likely to commit infidelity. The Investment Model assesses the commitment levels in a romantic relationship based on four factors: satisfaction within the relationship, the alternative qualities that one could have had outside of the relationship, the investments that one has put into the relationship, and commitment within the relationship (Rusbult, Martz, & Agnew, 1998). It was hypothesized that students who are committed to their partners would be less likely to commit infidelity. In addition, gender and age were analyzed in relation to infidelity as well as attitudes towards infidelity. It was hypothesized that college men would be more likely to commit physical infidelity than women, college women would be more likely to commit emotional infidelity than men, and older college students would be more likely to commit infidelity than younger college students. Similar research has been conducted in Texas; the main purpose of the current study is to explore whether those results can be replicated in a northern university.

465 Concourse 3:30-4:15 Board 60C
Sarah McCormick
Lisa Scott (Faculty Sponsor)
Effects of Early Individual Level Training on the Processing of Human Faces in Early Childhood

Within the first year of life, experience with different types of faces and objects influences perception and recognition later in life. Between the ages of 6 and 9 months, infants undergo perceptual tuning to faces that they experience most often. Previous studies have shown that infants at 6 months are able to discriminate between monkey faces. However, only infants trained with individually labeled monkey faces are able to distinguish between monkey faces at 9 months (Scott, & Monesson, 2009). In another investigation, 6 month old infants did not discriminate between two strollers, but infants at 9 months who learned to match images of strollers with individual level names did develop the ability discriminate among strollers (Scott, 2011). A recent study brought back young children, who participated in this infant learning study, at the age of 4-6 years, and found that individual training with monkey faces has influenced the processing of human faces in early childhood (Hadley, Pickron, & Scott, in preparation). The present investigation examined whether or not early individual level training with strollers also influenced the processing of faces or strollers in early childhood. Children who participated between the ages of 6 and 9 months were brought back between the ages of 4 and 6 years, and compared against a control group of children who were not trained as infants. Preliminary data suggests that children who learned individual level names with specific strollers as infants show differential responses relative to the children who had category-level training and the untrained control group.

Gender in the Media

The purpose of this thesis was to conduct a literature review examining the way gender is portrayed in the mass media and how the media affects individuals’ perceptions of the way men and women should appear and behave. In Western society, individuals are exposed to numerous forms of mass media, ranging from advertisements to radio to television shows, every single day. Exposure to the media often begins at a young age, when children are still developing their ideas and concepts about the world (Hofferth, 2010). Studies suggest that the media can influence the viewer’s perceptions and behaviors without them even consciously realizing it. Exposure to characters as innocent as television heroes and Disney princesses could potentially shape the way someone grows up to view men and women, for better or for worse. Oftentimes, men are portrayed as dominant, influential, and aggressive (Aubrey & Harrison, 2004; Gow, 1996). Women, on the other hand, are typically portrayed as submissive and are objectified, with an underrepresentation of different body types (Ivory, 2006; King, Lugo-Lugo, & Bloodsworth-Lugo, 2010). While media exposure can result in many behavioral outcomes, this thesis project focuses on eating disorders. It is important to be aware of stereotypes created by mass media so that we understand from where many of our ideas about masculinity and femininity come and to examine ways to avoid or mitigate the negative effects of exposure to these stereotypes.

Edgar A. Poe through a Psychological Lens

There are two sides to Edgar Allan Poe, and this presentation looks into the both the artistic and psychological aspects of both his life and story and several pieces of work that are similar in nature, (“The Tell Tale Heart”, “The Black Cat”, and “The Raven”). Are there meaningful connections between the material covered in Psychology and these works of literature? Is using psychological criticism helpful for understanding these particular works or does it muddle the picture of our understanding?
In young adults, sleep following learning significantly improves both memory recall compared to when a similar period of wake follows learning (Diekelmann, 2009; Gais, 2006). For older adults, however, this sleep benefit, while preserved in a declarative task, was not seen on a motor sequencing task (Wilson, Baran et al. 2012). To further examine these age-related changes in sleep and memory, we examined whether a sleep benefit would be observed on a declarative sequencing task. Both older adult (n = 24) and young adult participants (n = 86) were tested. The task involves navigating through a series of ten doors in a specific order to reach the end of the “maze” to reach the pot of gold. Half of the participants in each age group learned the task in the morning and their memory for the sequence was tested 12 hours later in the evening (wake group), and the other half learned in the evening and memory recall occurred the following morning (sleep group). The younger adults in the sleep group made significantly fewer errors at recall than the wake group (t(86) = 2.524, p = 0.013). However, the older adults did not differ in errors made regardless of whether the 12-hour delay period contained sleep or wake (t(24) = .337, p = .274). The results suggest that sleep does benefit memory for a cognitive sequential task in young adults, but does not show the same benefit in older adults.

469 Concourse 3:30-4:15 Board 56C
Alina Gusev
Emmanuelle Torres
Nicholas S Fulone
Rebecca M Brossoit
Marysa Mezzetti
Rebecca Spencer (Faculty Sponsor)
Department of Psychology, UMass Amherst
The Role of Sleep in Gist Extraction in Young Adults

Healthy sleep has been shown to benefit physical, mental and cognitive health. Studies that have looked at the role of sleep in memory consolidation involve memory probes administered before and after a period of delay; performance on these memory tasks is tested after a 12-hour interval containing overnight sleep or a typical day spent awake. As such, it has been demonstrated that sleep, relative to wake, benefits performance on a range of cognitive tasks in young adults, spanning declarative and procedural memory systems. Interestingly, using the Deese-Roediger-McDermott (DRM) paradigm, sleep has also been shown to increase false memory recall. In this paradigm, participants listen to eight lists of words that are connected by a central theme (for e.g. “night” and “dream”). Each list, however, is missing one “critical” word that semantically ties the other words together (for e.g. “sleep”). It was observed that following sleep, participants recalled more words in general, but they also recalled more critical words as compared to those that stayed awake. This effect may be viewed as a process of “gist extraction” occurring over sleep. We tested a sample of young adults (age range 18-30 years) from the University of Massachusetts Amherst. Participants were randomly assigned to either a SLEEP or WAKE group. For the SLEEP group, we collected sleep physiology data, using polysomnography (PSG), which is a montage of electrodes including EEG, EOG and EMG, in order to test whether time spent in any particular sleep stage was correlated with the rate of false recall. An increase in false recall following a period of sleep would suggest a sleep-dependent mechanism for the extraction of the gist of information learned over wake, a process that may result in memories that are more useful in the long-term.

470 Concourse 11:35-12:20 Board 56C
Suzannah R Murray
Elise Muren
Anna Flanagan (Faculty Sponsor)
Department of Psychology, Framingham State University
Perceptions of Academic Performance and Coping Strategies as a Function of Marijuana Use and Sex of User

The purpose of this study is to examine perceptions of academic performance and coping strategies as a function of marijuana use and sex of user. Undergraduates (N=180) will be asked to read one of six scenarios describing a college-aged girl or boy who smokes marijuana frequently, occasionally, or never. Participants will then be asked to complete a questionnaire about the scenario character regarding academic achievement, coping strategies, and marijuana experiences. Upon completion, participants will be asked a series of demographic questions. It is expected that male scenario characters who smoke marijuana one to four days a month will be perceived as having higher levels of academic confidence, higher achievement motivation and better academic performance than female scenario.
characters who smoke marijuana five or more days a week. It is also projected that female scenario characters that tried smoking marijuana but did not like it will be perceived to have better academic stress coping strategies than male scenario characters who smoke marijuana five or more days a week. Future research could examine the use of stimulants or hallucinogens and their effects on academic performance and coping strategies.

471 Concourse 3:30-4:15 Board 68C
Timothy Niedziela
Tiffany Donaldson (Faculty Sponsor)
Department of Psychology, UMass Boston
High anxious Long-Evans rats show an overlap of greater cortical 5-HT1A receptor densities and impulsive patterns

Preclinical work suggests a relationship between stress and sensitivity to stimulants, and impulsivity and sensitivity to stimulants. The current project advances on this simple model by using extreme trait anxiety outbred rats in order to establish an overlap of the impulsivity and anxiety domains. High and low anxious male Long-Evans rats (N=16) were tested for impulsivity across 25 concurrent days using an operant training paradigm, the differential reinforcement of low rates of responding (DRL). Since 5-HT1A receptor levels have been implicated in both impulsivity and drug vulnerability, we analyzed medial prefrontal cortex levels postmortem. Our results show that in the DRL, high anxiety (HAn) rats attained fewer total rewards during consecutive test sessions (40.4) relative to low anxiety (LAn) rats (45.4). Furthermore, the data reveal that HAn rats had an 83.7% efficiency rate, while LAn exhibited a 93.2% efficiency rate. Postmortem ICC analysis of the medial prefrontal cortex showed average number of 5-HT1A receptor densities of 74 for HAn subjects and 54 for LAn subjects. These data suggest that HAn animals exhibited a low success rate for correct lever presses during DRL, and thus, greater impulsivity. Also, HAn animals showed higher densities of 5-HT1A receptors in the medial prefrontal cortex often indicative of impulsive behavior. Together, our findings support the use of outbred trait anxiety rats in further research aimed at understanding the overlap of substance abuse and impulsive behaviors.

472 Auditorium 1:30-2:15 Board 62C
Lisa O’Donnell
Joanna Gonsalves (Faculty Sponsor)
Department of Psychology, Salem State University
Out of the Darkness

This paper addresses the prevalence of suicide on college campuses, underlying causes, obstacles to treatment, and approaches to effective prevention. The Centers for Disease Control reports that suicide is the third leading cause of death among college-aged people. To investigate the effectiveness of a direct, information-based prevention method, the author showed “The Truth about Suicide: Real Stories of Depression in College”, a video produced by the American Foundation for Suicide Prevention, to an Introduction to Psychology class at Salem State University. After the viewing, students completed feedback forms. All of the students who viewed the video responded positively to the film, reporting that it was helpful. These results suggest that the video be shown more widely on campuses, exposing a larger proportion of the sometimes-vulnerable college-age population to this prevention intervention.

473 Concourse 3:30-4:15 Board 45A
Andrea Ovalle
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
The Effects of Dreaming in Waking Life

The effects of dream in waking life have been an area of great interest in studies of dreaming. Studies in dream content have been overlooked by many researchers because the difficulty of its study, therefore researchers have focused on how dreams are form rather than its content. Dreaming has been contributed for many scientist to be the result of selective activation and inactivation of brain areas that are related with emotions and memory, as a result many scientist have concluded that dreams are just the result of brain activation and that they don’t have any other function as such. However some studies in depression and dreaming suggest that dreams serve as an enhancement tool of waking attitudes, and that dreams serve as a source for creativity, and problem solution. I aim to support with several scientific studies that dream content awareness has a function and has an influence in our waking behavior.
474 Concourse 2:30-3:15 Board 54C
Matthew Pageau
Seth Surgan (Faculty Sponsor)
Department of Psychology, Worcester State University
The Subjective Flow of Time

This study investigates whether the feeling that “time is flying” affects enjoyment of a reading task. To investigate this, participants were asked to read a passage for 10 minutes. Researchers manipulated the complexity (high/low) and duration (5/10/15 minutes) of the task. Participants were randomly given either the stimulus passage to read in a normal format or in mirror image format. We hypothesized that participants would report enjoying the task more when time seemed to fly and less when it dragged and that this effect would vary along with task complexity. Participants (n = 65) were asked to fill out Brief Mood Introspection Survey (BMIS) before reading the passage. After the appropriate duration had passed (5/10/15 minutes), participants were asked to stopped reading, and given a second BMIS. Participants were asked to indicate their enjoyment of the task, and whether they felt time passed at a different rate than normal. Constructs which may skew time perception (e.g., attention, absorption) were also measured to understand their relationship with time perception, and possible relationship with enjoyment and emotional well-being. Preliminary results indicate a significant duration x complexity interaction. Specifically, temporal distortion does not seem to affect enjoyment of a low complexity task. However, time “flying” seems to buffer participants in the high complexity condition against a decrease in mood. I am hopeful these results will help establish a relationship between task complexity and time perception; as well as the importance of time perception in event framing and emotion construction.

475 Concourse 2:30-3:15 Board 70C
Guillaume Pagnier
Andrew Cohen (Faculty Sponsor)
Department of Psychology, UMass Amherst
Stress and sensation-seeking during decision-making

Previous research suggests that high sensation-seeking individuals, i.e., individuals who tend to seek out new experiences, tend to experience less stress during negative life events (Smith et al., 1990). These individuals also tend to prefer riskier decisions compared to low sensation-seekers (Zuckerman et al., 1993). The current research examines whether this bias occurs because high sensation-seekers experience a muted physiological stress response when making risky decisions (i.e., decisions with uncertain outcomes). More specifically, we compare the physiological response of high and low sensation-seekers during financial decisions. Participants are asked to choose between a gamble (e.g., 50% chance of winning $2 or $5) and a fixed amount of money ($3). Heart rate and galvanic skin response are measured during the decision process and, when the gamble is selected, during the anticipation and conclusion of the gamble. A small change from base-line readings would indicate a muted stress response for high sensation-seekers. We also explore if stress responses are modulated by high- and low-stress choices.

476 Concourse 1:30-2:15 Board 67C
Cassandra Panetta
Mohinish Shukla (Faculty Sponsor)
Department of Linguistics, UMass Boston
Looking patterns for a noun and verb in prelinguistic infants

Nouns outnumber verbs in children’s early comprehension and production, and it is not entirely clear why they differ in their developmental pattern. The overall aim of our lab is to investigate how nouns and verbs are acquired, and why they differ in their acquisition patterns. The goal of this current study is to develop an “assay” to index the understanding of verbs and nouns in an online looking-while-listening task in 6-10 month-old infants. This assay will be used in future studies, using artificial language paradigms, to uncover the cognitive bases of verb acquisition. In the current study, we observe how infants look at a scene when they are presented with the noun “ball” and the verb “jump.” The words were chosen from the MacArthur CDI based on their presence at the earliest ages, and the ease of scoring for differential looking patterns for the two words. In each trial, an animation of a red ball on a table, jumping
from the left side and then disappearing into a box on the right, was accompanied by spoken tokens of either “ball” or “jump.” Preliminary results indicate that on “ball” trials, infants continued to look at the ball upon hearing the word. However, on “jump” trials, infants looked comparatively more towards the goal, indicating a comprehension that verbs refer to actions. If these subtle differences hold up upon completing data collection, it will be a first demonstration of different looking patterns indexing nouns and verbs.

477 Concourse 1:30-2:15 Board 63C
Amanda Raposo
Paul Galvin (Faculty Sponsor)
Department of Psychology, Framingham State University
Perceptions of Child Abuse

Child abuse has become a huge social problem. Research indicates that a significant number of children in the United States have been victims of physical abuse. The figures show that ethnic minority children (African Americans, Native American Indians/Alaskan Natives, and Pacific Islander children) have higher rates of reported child abuse compared to their Caucasian counterparts. The purpose of this study is to find out whether college students feel that minority children are abused more often than Caucasian children and to see whether lower class children are perceived to be more abused than middle class children. One hundred and eighty participants took the survey. In the study, there were six different conditions. There were three different babies (Caucasian, Asian, and African America) that were surrounded by pictures of rooms in a house that were dirty and disorganized. For each of the pictures there was also a scenario which depicted a lower class family or a middle class family. From the scenarios and the pictures participants had to decide whether they perceived that the child was being abused. It is predicted that minority children are perceived to be more abused than Caucasian children and that children from the lower class are perceived to be more abused then children from the middle class.

478 Concourse 3:30-4:15 Board 55C
Eileen Rasmussen
Tiffany Donaldson (Faculty Sponsor)
Department of Psychology, UMass Boston
Emotion and decision-making in a college student sample

Emotions, although often short-lived, can temporarily alter thoughts, actions and physiological states. Thus, it seems that emotions may affect cognitive capacities in a multitude of ways. Examination of certain emotions and their influence on certain cognitive processes may offer helpful insight, in both clinical and non-clinical populations, and a better understanding of human behavior overall. The purpose of this study was to examine the relationship between induced affect (induced via the International Affective Picture System; IAPS, and music previously shown to produce specific moods in previous research) and performance on psychological tasks (Iowa Gambling Task; IGT, and Remote Associations Test; RAT). These tasks assessed “semantic access” and risky decision-making. The sample included approximately 90 male and female undergraduate students at a public state university, split into three equal-sized groups (induced positive affect group, induced negative affect group, and a neutral “control” group). It was hypothesized that an induced negative affect would promote an increase in risky decision-making while an induced positive affect would have an opposite effect, or decrease risky decision-making, as found in previous studies which utilized similar measures. It was also hypothesized that an induced negative affect would narrow the scope of attention, resulting in reduced semantic access, or decreased number of word associations on the RAT, while an induced positive affect would show the opposite effect. Results were analyzed using a 3 x 2 mixed model ANOVA with a between-subjects factor of mood, as well as a within-subjects factor of task. Preliminary data suggest that the stimuli had the proposed effect; further analysis of data after completion of all participants will provide more complete and specific analysis and offer more insight into the relationship between induced affect and task performance. The potential influence of confounding variables such as personality (measured via the NEO-FFI) and gender will also be considered during analyses. Findings from this investigation contribute to the expanding literature regarding the complex role of emotions in decision-making.

479 Concourse 2:30-3:15 Board 66C
Emily Richter
Lynn Shelley (Faculty Sponsor)
After-school community programs provide supervision, care, and opportunities for positive development of children and adolescents. After-school programs currently serve over 4 million children in the United States alone (Fusco, 2008). Previous research found that children who are unsupervised have higher rates of being involved in gangs, criminal behavior, illegal drugs, poor academic achievement, and an increase in teenage pregnancy (Fusco, 2008).

The Importance of Community Programs on Typically Developing Adolescents

After-school programs encourage positive development emotionally, physically, developmentally, and socially (Kreider & Raghuparthy, 2010). The present study conducted a content analysis of two program mission statements the Young Man’s Christian Club (YMCA) and the Boys’ and Girls’ Club (BGCA). Both focused on positive youth development and self-esteem in members. Program coordinators were then interviewed, questionnaires developed, and finally, participants of programs were surveyed to determine the success of the programs at meeting their missions. The reason these programs were selected is because they are open to all individuals, regardless of income, gender, race, faith, and ethnicity. Participants were asked about their education, their relationships with staff members at the program, relationships with their parents, and to rate their self-esteem on the Rosenberg self-esteem scale. Several questions also evaluated the programs. This research is important to ensure that community programs are fulfilling their mission statements and contributing to positive youth development. Results are being analyzed to evaluate the effectiveness of the program and how program managers can enhance their after-school programs for young people.

480 Concourse 1:30-2:15 Board 69C
Daniel Rowland
Vrinda Kalia (Faculty Sponsor)
Department of Psychology, Worcester State University
Who’s To Blame? Examining the Effects of Cognitive Reappraisal on Decision-Making about Blame

Two forms of emotional regulation have been considered in previous research by Richards and Gross (2000). The first, emotional suppression, is actively fighting outward emotional reaction. The second, cognitive reappraisal, allows us to rethink an action or event in a way that evokes different or lesser amounts of emotion. It is considered by many to be an effective method to deal with stressful events. Previous research by Lazar, Kaplan, Sternberg and Lubow (2011) supports the theory that negative affect constricts our field of attention, while positive affect expands it. Consequently, cognitive reappraisal may allow us to make more appropriate decisions. It is uncertain how cognitive reappraisal influences decision-making involving allocation of resources benefitting others. This study will provide insight into processes involved in making decisions and allocating benefits. Participants were shown a PowerPoint slideshow containing details about a car accident and responded to a questionnaire assessing the event as well as their opinion on allocation of blame (i.e. higher insurance rates for the responsible party). Participants in the study were split into two conditions. In the cognitive reappraisal condition, participants were instructed to be objective in assessing the events. In the control condition, participants were not given any additional instruction. We hypothesized that participants from the cognitive reappraisal group would be fairer in their allocation of blame. We found that by instructing participants to be objective in their assessment, we were able to prime them to engage in cognitive reappraisal, causing them to be fairer in their decision-making.

481 Concourse 3:30-4:15 Board 67C
Yezenia Santos
Enrique Morales-Diaz (Faculty Sponsor)
Department of Spanish, Westfield State University
The Effects of Media Consumption on College Students’ Perception about Immigration

This Senior Honors Project combines two disciplines, Psychology and Spanish, and focuses on the topic of immigration. Media plays a significant role in our society and may sometimes influence the way we think about certain subjects. The purpose of this research is to support that there is a relationship between media consumption and college students’ perception on immigration - that is, if media influences our perceptions about immigration. In order to test this hypothesis a survey was distributed to college students that contained questions about their media consumption habits and their opinions on the topic of immigration. The data was collected and analyzed to determine if there was a significant relationship. This research will provide valuable information as it could help us determine where people’s perception about immigration and immigrants, in specific Latin American immigrants, stems from and what steps can
be taken to make people more aware of the reality of immigration and the immigrant perspective.

**482 Auditorium 3:30-4:15 Board 40A**
Andrew Silletti
Alexander Hernandez (Faculty Sponsor)
Department of Sociology, Framingham State University
**Effects of Predispositions Towards Suppression and Reappraisal on Emotion Regulation**

The purpose of this study was to explore the effects of predispositional tendencies towards suppression and reappraisal on mood, as well as explore differences in effectiveness of emotion regulation between younger and older adults in response to highly arousing and negatively valenced stimuli. Overall, older adults (M= 38.65, SD=16.23) regulated their mood less effectively than younger adults (M=45.3, SD= 12.90), t (90) = 1.898, p=.061. A repeated measures ANOVA, using a composite reappraisal change percentage and the just view change percentage, indicated that participants experienced significantly better mood outcomes when reappraising (M=-24.30, SD =28.71) compared to just viewing stimuli (M=-65.04, SD=34.10), F (1,87) = 123.986, p<.001. Using a repeated measures ANOVA with instruction type as the within subjects factor and age and suppression category (via a median split) as between subject factors, there was a significant between subjects interaction between age and suppression category. While older adults with high predispositional tendencies in suppression (M=-57.00) were less effective at regulating their mood than older adults with low predispositional suppression (M= -44.26), younger adults high in predispositional suppression regulated their mood more effectively(M=-23.81) than younger adults low in predispositional suppression tendencies (M=-35.86), F (1, 87) = 4.62, p<.05. Although there was a main effect of reappraisal, F (1, 87) = 4.364, p<.05, in that those with high predispositional tendencies towards reappraisal (M=-28.342) were more effective at regulating their emotion than those with low predispositional tendencies towards reappraisal (M=-43.523), reappraisal did not interact with suppression or age. The results of this study indicate that suppression may be a mediator to effectively regulating emotions to highly arousing and negatively valenced stimuli.

**483 Concourse 2:30-3:15 Board 55C**
Nicole Slade
Alice Carter (Faculty Sponsor)
Department of Psychology, UMass Boston
**Accommodations in Employment, Financial, Social, Family Communication, Household, and Religious Domains by Parents Raising Children with Autism**

There has been limited research focused on child and parent factors that predict accommodations made by parents raising children with Autism Spectrum Disorders (ASD) to sustain their daily routines. An accommodation is defined as a modification of daily routines due to child's ASD symptoms. By identifying areas of need, researchers and clinicians can develop more holistic family-centered therapies to promote better family functioning. In a sample of 174 parents raising children with ASD, this paper explores: 1) rates of accommodations in each of the following six domains: employment, finances, social, family communication, and religious activities; 2) rates at which accommodations co-occur; 3) the percentage of parents who endorse accommodations in more than one domain; and 4) parent and child characteristics that predict the number of accommodations parents made. RESULTS: The largest percentage of accommodations was made in the social (67%) and household (63%) domains. Social accommodations were 5.7 times more likely to occur with religious accommodations, family contact accommodations were 5.1 times more likely to occur with social accommodations, and employment accommodations were 3.8 times more likely to occur with financial accommodations. Seventy-five percent of parents made accommodations in two or more domains (μ=3). Regression analysis will be used to explore child and parent characteristics that are associated with number of accommodations made by parents. These results suggest that raising a child with ASD can impact several domains in families' lives beyond that of a child’s academic needs. Research about and support for the family system may be beneficial to optimize family functioning.

**484 Concourse 3:30-4:15 Board 64C**
Shelby Smith
Susan Dutch (Faculty Sponsor)
Department of Psychology, Westfield State University
**Leadership**
Since 1787, the USA has been led by great leaders such as Presidents George Washington and John F. Kennedy. What differentiates a great leader from others, and what type of leader am I? This study is a brief review of the five different leadership styles (Autocratic, Laissez-Faire, Participative, Transactional, and Transformational). It begins with a description of each of the theoretical styles, and then turns to the literature for a review of the effectiveness of each style under different social, political, and goal-oriented conditions. The question of what makes a great leader is discussed. The paper concludes with a reflection of what type of leader I believe I am, and why. I came to that conclusion that, in my role as President of Westfield State University’s chapter of Psi Chi, I am a Participative leader.

485 Concourse 2:30-3:15 Board 67C
Evangelos Souliotis
Lisa Sanders (Faculty Sponsor)
Department of Psychology, UMass Amherst
Uniqueness point modulates processing of continuous speech

Detailed processing of all of the rapid acoustic changes in continuous speech would overwhelm limited neural resources. Previous event-related potential (ERP) evidence suggests that listeners deal with the overwhelming amount of information by directing attention to the initial portions of words. It is unclear whether listeners attend to all of the sounds that follow a word boundary (segmentation hypothesis) or the sounds that are least predictable from the preceding context (predictability hypothesis). In natural speech, there is typically a relationship between word boundaries and predictability. In an artificial language, predictability can be manipulated independently from word position. In the current experiment, predictability was manipulated in six trisyllabic nonsense words by controlling the uniqueness point, the position within a word at which the sequence of phonemes distinguishes it from all other words in the language. Participants listened to a continuous stream of the artificial language before and after explicitly learning the six words in a word-picture matching task. After training, all syllables preceding the uniqueness point regardless of word position elicited a larger anterior negativity 250-400 ms after onset. These results indicate that predictability, rather than segmentation, was driving the differences in processing speech before and after training. However, the ERP effects were later than what was previously observed (90-120 ms). Repeating the same syllables in multiple words may have encouraged listeners to adopt a different strategy than what is typically used for allocating attention during continuous speech processing.

486 Concourse 1:30-2:15 Board 65C
Benjamin Spencer
Elizabeth Dunphy (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Alice’s Adventures in Wonderland: How Bibliotherapy, Logic, and the Absence of Morality Can Help Young Children Ease the Anxiety and Confusion of Development

Author Lewis Carroll’s first book, Alice’s Adventures in Wonderland, published in 1864, has been analyzed from hundreds of different perspectives. The book has not, however, been analyzed from the viewpoint of how it might function as tool to gain insight on the thought processes of children; in addition, its function as a tool to ease the discomfort and anxiety that accompanies normal child development has not been explored. In this paper, this work is analyzed for use as a tool for bibliotherapy. As well, it studies the therapeutic aspect of not deriving any moral lesson from the story. Finally, it explores the logic puzzles within the text as examples of the formation of cognitive reasoning skills, providing examples of thought processes with which they can identify in a therapeutic manner. It also considers the therapeutic effect of illogical whimsy. Prior to these topics, the implicit concepts of stories, dreams, and identification (empathy) will be briefly explored. The above mentioned are examined while keeping in mind that the story is of a young girl’s dream, which frees the reader from feeling as though they need to adhere to more widely accepted definitions of reality and normal behavior. The overall conclusion is that the work is an adequate example of bibliotherapy, and is an excellent tool for helping children better navigate school-age development.

487 Concourse 1:30-2:15 Board 66C
Cristen Sullivan
Dr. David Gow (Faculty Sponsor)
Department of Psychology, Salem State University
The Mouse Was Chased by the Hat: The Influence of Semantic Context on Phonetic Processing.
The purpose of this experiment is to serve as a behavioral pilot study exploring the connection between semantic context and phonetic processing. Using a phonetic morphing algorithm we created pairs of phonetically ambiguous words, which have two possible interpretations. Participants listened to sentences that were biased towards a particular target word. (ex. Her piano was never in TUNE vs. He climbs the DUNE). After hearing the sentence participants reported whether or not they heard a particular consonant (T vs D) in the sentence they just heard. This research posits that semantic context creates a bias towards context appropriate solutions when subjects interpret ambiguous stimuli in constraining compared to non-constrained conditions.

488 Concourse 2:30-3:15 Board 49C
Alycia Sullivan
Rebecca Spencer (Faculty Sponsor)
Department of Psychology, UMass Amherst
Age-Related Changes in the Role of Sleep in Gist Extraction

Sleep is vitally important for physical and mental health. Recent research in young adults suggests that sleep is important for many cognitive processes. We are particularly interested in the role of sleep in memory consolidation. Aging is associated with cognitive decline as well as drastic changes in sleep architecture, and there is still much research to be done in order to understand how the relationship between sleep and cognition changes with age. This knowledge is becoming more necessary, as the population of adults 65 and older will double in the next 25 years. It is important to realize the implications of these age-related changes, and perhaps gain insight into strategies that could improve older adult sleep habits, and consequently, their cognition. Gist extraction is an executive function important for cognitive flexibility, verbal fluency, and abstraction ability. The process of gist extraction helps people derive global, overarching meaning from specific details. It seems that gist information improves memory over longer periods of time, when exact details are forgotten rather quickly via decay or interference. Previous research has shown that a night of sleep increases both veridical (exact) and false (gist) recall in young adults. With respect to age, research suggests that older adults can more efficiently extract the gist of information than young adults. We are particularly interested in how sleep affects gist extraction in older adults, a relationship which is yet to be studied. Using the Desse-Roediger-Mcdermott (DRM) paradigm, we will test the hypothesis that sleep aids in the process of gist extraction for older adults, more so than young adults. In this experiment, older adult participants will be presented with a list of words auditorily, where the words in each list are semantically related. Each word within a list is related to one “critical” word, which is missing from the list. After a twelve-hour period of either sleep or wake, participants will be asked to free recall all the words they can remember. Recall could be of words that were actually on the list (veridical recall,) words that were not on the list (intrusions) or the critically important words (false recall). We hypothesize that after a period of sleep, older adults will show increased veridical and false recall compared to after wake. We also hypothesize that older adults will be more effective in extracting gist information than younger adults. If findings suggest that older adults have improved gist memory after sleep, it could reflect a compensatory mechanism as a result of their declining capacity for veridical recall.

489 Concourse 11:35-12:20 Board 49C
Adris Thompson
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Emotional Intimacy in the 21st Century

Intimacy is being vulnerable with another, physically and/or emotionally. Human beings not only seek but need intimacy, and find it in such relationships as marriage, a romantic partnership meant to last “till death do us part;” but how many marriages actually meet this expectation? According to the Center for Disease Control and Prevention, in 2010 the United States had a marriage rate of 6.8 per 1,000 of the total population, compared to a divorce rate of 3.6 per 1,000 of the total population; this means that just over half of all marriages are now ending in divorce (44 reporting states and D.C.). 50 years ago when the same data was collected nationwide, the marriage rate was 8.5 per 1,000 of the total population, compared to a divorce rate of 2.2 per 1,000 of the total population. So not only was the divorce rate much lower, but the marriage rate was also higher. What created such a drastic shift? Is it possible previous generations did not see marriage as “having an out”, so sharing oneself did not carry much risk? And since current generations don’t see marriage as having to last forever, is being vulnerable with a spouse a risk they are not taking? This paper will attempt to answer the question: How does the divorce rate of the 21st century affect people’s
Presenters • Poster Sessions

490 Concourse 2:30-3:15 Board 52C
Michele Trawczynski
Tiffany Donaldson (Faculty Sponsor)
Department of Psychology, UMass Boston
Effects of closed nesting environment on neurological outcomes following hypoxia ischemia in rats: Female advantage

Hypoxic ischemic (HI) injury is a severe form of white matter damage that results from a distinct complication during pregnancy such as a localized injury to the umbilical cord, known as birth asphyxia. In animal models, the Rice-Vannucci method of unilateral carotid artery ligation can induce similar HI injury. Using this model we induced injury in postnatal day (PND 7) Long-Evans rats (N=26; 4 litters). Dams and their litters were split into two environmental pre-weaning manipulations, the normal animal facility (AF) and a nest box (NB) environment. Beginning on PND 35, neurological and behavioral tests were performed including reflex tests as well as Morris water maze (MWM) and open field tests to assess memory and stress, respectively. Nissl stain will be performed on three post-mortem brains with varying levels of damage. Statistical analyses revealed an overall greater MWM performance for NB females with similar initial results for the reflex battery and open field tests. It is also expected that the animal with the highest amount of hippocampal and cortical damage will have performed poorly on the behavioral tests and not had NB intervention.

491 Concourse 1:30-2:15 Board 64C
Ashley Veasy
Bonnie Strickland (Faculty Sponsor)
Department of Psychology, UMass Amherst
Can Psychopathy be Predicted in Children?

Psychopaths are some of the most notorious criminals in our nation’s history and have long been in our media’s eye. They are portrayed as emotionless, manipulative, superficial and lacking in empathy or guilt. But, one thing the media has failed to portray is how psychopaths are created. Psychopathy is not diagnosed until adulthood but is often exhibited in childhood. Childhood psychopathy is usually diagnosed as a conduct problem such as oppositional defiant disorder or conduct disorder. There have been correlations with the stability of the behaviors from these disorders and antisocial and potentially psychopathic behaviors as an adult, but no causal effects have been found. If the personality traits are seen as early as childhood, why haven’t there been early intervention programs? Diagnosing a child as a psychopath has moral issues surrounding it because of the common and widely held belief that psychopaths are untreatable and are ‘lost causes.’ There is a need for new intensive treatments that start with early intervention in those children exhibiting early psychopathic behaviors in order to alter the personality traits associated with this disorder.

492 Concourse 3:30-4:15 Board 58C
Richard Wiggill
Paul Galvin (Faculty Sponsor)
Department of Psychology, Framingham State University
The Role of 12-Step Program Participation in Reducing Self-Discrepancies

Alcoholism and substance abuse drastically affects the emotional states and identities of individuals. Individuals with alcohol and substance abuse disorders experience large actual versus ideal self-discrepancies, or disconnect between who they are and want to be. It was hypothesized that participation in 12-step programs and longer lengths of sobriety will be related to smaller actual versus ideal self-discrepancies. Also, this qualitative study explored which parts of AA and NA participation contribute to a decrease in actual versus ideal self-discrepancies. Semi-structured interviews were conducted with six participants (1 women, 5 men, Mage = 24.33 years old, age range: 19 - 30 years old). The hypothesis was supported, and six major themes were identified: (a) self-discrepancies increase with relapses, (b) self-discrepancies and increased usage, (c) reduced self-discrepancies with continued sobriety and AA/NA participation, (d) reduced self-discrepancies due to fellowship and honesty, (e) reduced self-discrepancies due to step work, and (f) reduced self-discrepancies due to spirituality and spiritual principles.
Our project is aimed at a different, more unique form of violence. We are focusing on environmental violence and the ways in which we as humans abuse the environment as well as steps we can take to stop the violence and save our future. Our group will focus on different chemicals and carcinogens we carelessly dump into the environment, causing increased risk of asthma and other respiratory diseases in urban areas. We will make a poster to advertise the dangers of air pollution. We have research articles that focus on this issue. One article by Allen et al., researched the effects of air pollution on mice. Results showed that mice exposed to air pollution had a higher occurrence of respiratory disorders and behavior problems than mice raised on filtered air. Another article by G D’Amato goes into detail of the laboratory studies that support evidence that air pollution adversely affects lung function in asthmatics. We will also be looking into how exposure to air pollution affects children. An article by Gilliland F D explains how regulated and unregulated pollution needs to be controlled to reduce exposure and prevent the adverse health effects of air pollution. We will use this research along with many other research articles to educate parents and children of the importance of keeping our planet safe and healthy. We will address methods to reduce air pollution such as taking public transportation and reducing smoking cigarettes in public places.

War rape is a tactic used by soldiers, or civilians during conflict or wartime to dominate, threaten, oppress, and terrorize. Rape, mutilation, and harassment are used by to place a community into fear and coercion. War rape poses a threat to health and human rights around the world. Using scholarly literature accessed through the University of Massachusetts Amherst library database, this project aims to shed light on the severity of this war tactic in developing countries and its impact on the communities. Consequences of war rape are complex and far reaching. War rape creates devastating health consequences, such as increased STD rates, disability, and mortality. It also creates psychological problems such as depression, fear, and anxiety. Social contexts also change in communities that experience sexual violence in wartime. These communities have increased post war civilian rape cases, cultural degradation, and mistrust of leadership. War rape humiliates its victims, families, and communities leading to the capture of resources and often becomes the gateway into sexual slavery. These consequences of war rape are compounded with the effects of war on the community, creating an even greater burden in war-stricken nations. Our project will highlight the problem of wartime rape and use a social marketing campaign to raise awareness on the issue. Social marketing is an effective tool in Public Health to promote awareness and encourage change in the area of wartime sexual violence. This project will analyze the effects of war rape on communities and in a global context.

Public Health Effects of Mass Incarceration as a Result of the War on Drugs
Since its beginnings, America’s War on Drugs has led to a dramatic increase in the number of inmates who are incarcerated due to non-violent, drug-related offenses. Statistics continue to reflect that imprisonment for these offenses is increasing at such a high rate that many correctional facilities are becoming overcrowded. The incarcerated members of our society are overwhelmingly minorities who hail from low-income backgrounds. We will explore the community health concerns of how incarcerating low-income, urban minority men has adversely affected their lives, including their families, communities, health and future opportunities. This includes discussing the challenges former inmates face as they seek to reintegrate themselves into mainstream society. We will conduct a literature review and interview those who have had a direct experience with correctional facilities as a result of non-violent drug crimes. Our recommendations will present suggestions for reducing and ideally eliminating incarceration’s negative public health impacts. We will also explore preventive measures that can be enacted in communities where drug related offenses are especially pervasive in terms of providing other means for economic gain.

496 Auditorium 3:30-4:15 Board 59C
Annahita Forghan
Alex Woodward
Ewelina Furgal
William Bebrin
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst

As healthcare continues to be a dynamic topic in the political arena, one question keeps appearing in debates: what is the most cost-effective financial structure for a healthcare system? Our team plans on analyzing the cost benefits of healthcare within four differing countries: the United States, a nation known for its independence and promising progress on the road to universal healthcare; France, a socialist nation with a well-developed universal healthcare system; Canada, another democratic nation boasting of a countrywide universal healthcare system; and finally China, a nation with a good healthcare system, but whose citizens are still struggling to find their independent voices. After examining several issues currently being mentioned in peer-reviewed journal articles, national news broadcasts, as well as everyday media sources, our team aims to learn which of these countries is doing best in terms of disseminating its health care resources. In other words, being given a budget to spend on health services, which country is utilizing their budget most wisely? And how do the citizens in each nation feel about the financial aspects of providing beneficial healthcare? After more searching, we quickly learned some countries are utilizing their financial resources better than others, and some citizens are happy, while others furious. Because our topic is so broad, we decided to narrow down our comparisons into four categories: general medicine, emergency/ambulatory services, geriatric/long-term care, and preventative care.

497 Auditorium 9:00-11:00 Board 6A
Cesar Bernal Corzo
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
Human Health Implications of Mercury Consumption in the Northeast

Elemental mercury, inorganic mercury, and methyl mercury are ubiquitous in our environment and have significant neurological human health effects. In the environment, mercury has the ability to become methylmercury, its organic form, and contaminate a large percentage of groundwater as well as bioaccumulate in fish and mammals along trophic levels. Methylmercury enters the environment by direct input into the atmosphere as well as by anthropogenic sources such as wastewater outputs and combustion of fossil fuels. Though the EPA has made efforts to reduce mercury outputs, and emissions in the United States have declined by approximately 60% since 1990, the Northeast contributes a significant amount to the national output. Residents of the Northeast are at a higher risk due to its coastal proximity and a greater abundance of fish consumption. MeHg can be found in most fish species. Children exposed to low concentrations of methylmercury even prenataally might be at risk of poor performance on neurobehavioral tests. Due to the severity of these implications and its continued persistence, it is important that we study the extent to which mercury consumption is affecting Americans in the northeast and the methylmercury recommendations for the protection of people who eat fish and shellfish. Faculty Sponsor Dr. Paul T. Kostecki Katelynn Venne Alexandra Olmsted Lilian Alvarado Cesar Corzo
498 Auditorium 9:00-11:00 Board 8A
Sarah Brodersen
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
Hospital Birth vs. Natural Birth: Are We Over Medicalizing Births?

The U.S has a high infant mortality rate, yet it is one of the most developed countries in the world. Additionally, it has one of the highest maternal mortality rates of industrialized countries. The goal of our project is to explore the different methods of childbirth in the United States and compare them to other countries, in order to see how these medical interventions relate to the birthing process. We also want to investigate the risks and benefits of natural child birth and medicalized child birth. We want to inquire whether or not the American health care system is rushing the child birthing process with drugs and cesareans for convenience and profit. We will gather our information through interviews with midwives, doctors, and women who have experienced child birth. Also, by looking at past studies and scholarly reviewed journal articles found on public databases comparing the effects and outcomes of different types of childbirth.

499 Auditorium 3:30-4:15 Board 1A
Ninjin Boldbaatar
Rebecca I Greene
Ryan Burke
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
Simple Technologies for a Complex Problem: Water Filtration for Diarrheal Diseases

Cholera is a disease caused by the Vibrio cholerae bacterium, which can be ingested from food and drink. The disease is primarily spread through water contaminated by an infected person’s feces. Because cholera is largely spread through contaminated water, regions without adequate sanitation infrastructure are prone to outbreaks. Across the globe there are numerous methods that are utilized that help populations deal with the disease, from vaccines to local remedies. In India the use of sari cloths have been shown to be effective in terms of removing the bacterium from the water making it safe for human consumption. Also in Haiti the use of the LifeStraw has shown to be an effective measure against cholera outbreaks, especially after the severe earthquake and damage the country suffered following the 2010 disaster. Finally there is the Oral Cholera Vaccine (OCV) which is becoming more popular as it can fight multiple strands of the disease and becoming more available to poorer populations. We propose to do an analysis of three methods with aims to lower cholera incidence in developing countries like India or Haiti. This analysis will compare the Oral Cholera Vaccine, the Sari cloth, and the LifeStraw, in their effectiveness, both in acceptance and actual eradication of the bacterium and cost of distribution. We will examine potential roadblocks to the success of a program and compliance to the program and possible solutions to these problems.

500 Auditorium 9:00-11:00 Board 31A
Caroline Conena
Paula Stamps (Faculty Sponsor)
Department of Public Health, UMass Amherst
Communicating the Threat of Anthrax: A Health Literacy Perspective

The Anthrax attacks of 2001 caused widespread panic and disruption. People who were unfamiliar with anthrax as a disease and biological weapon sought information related to their health and safety. Communicating health information was crucial. However, government and news sources faced many challenges providing timely, accurate, and accessible information. The purpose of this paper is to: 1.) explore how people seek information during a biological threat and 2.) determine whether this information is effective. The first part of this paper uses expert theories, health organization findings, and academic research to create a health communication and health literacy framework. Next, it incorporates national surveys and professional journals to highlight where people went for information following the attacks and lapses in communication methods. Specifically, the Internet is discussed as a communication channel and the CDC as a responsible entity for distributing health information. The final section reviews the CDC's webpages
on anthrax using the guideline, Health Literacy Online. This analytical tool studies the content, design, and usability of the CDC webpages in order to give recommendations for better communication. It is not enough for organizations such as the CDC to provide accurate content to the public about diseases and their health. They must also present this information in an accessible, beneficial way. The Anthrax attacks pointed out many health communication flaws and a missed opportunity to improve health literacy. Health information on anthrax needs to be communicated so the public understands it today and can make informed health decisions in the future.

**501 Auditorium 9:00-11:00 Board 10A**  
Arianna R DeMinico  
Melody S Halzel  
Winnie Chen  
Kaitlin Doherty  
Paul Kostecki (Faculty Sponsor)  
Department of Public Health, UMass Amherst  
**A Comparison of Women’s Access to Reproductive Care in a Rural verse Urban Settings**

We have acknowledged that within the United States, both new mothers and

**502 Auditorium 9:00-11:00 Board 9A**  
Carrie A Howard  
Christina Kamouzis  
Chidiogo Onwuakor  
Christina P Demopoulos  
Jillian Ela  
Tameka Gillum (Faculty Sponsor)  
Department of Public Health, UMass Amherst  
**War in Relation to Veterans’ Health and Family Life**

War is commonly defined as a state of armed conflict between different nations or groups within a nation. However from a public health perspective, the consequences of war are more complex to define and understand. It is not difficult to grasp the immediate effects of war, however, the long lasting implications it has on communities, soldiers and individual citizens are often overlooked. Consequences often include: injury, loss of life, psychological and social challenges, as well as significant economical expenses. Through use of academic journal articles, epidemiological studies, and personal accounts from soldiers and their families identified via the University of Massachusetts Amherst library databases, we take an in-depth look into this public health issue. We subsequently use this information to inform the development of an anti-war social marketing campaign which will be the focus of our presentation. Social marketing integrates a systematic marketing approach with strategies of promoting new mental models around healthy behaviors. It also works toward achieving defined goals and positive long-term behavioral changes to benefit the wellbeing of society as a whole. Our social marketing campaign will be focused on raising awareness and providing education about the ill-effects of war. Our campaign will involve creating posters and brochures that address the ill-effects of war on veterans and family life as well as the lack of adequate support for this population. Ultimately, we hope these words and images will spark curiosity and lead to greater publicity and prevention of this multifaceted issue.

**503 Auditorium 9:00-11:00 Board 12A**  
Molly Flynn  
Tameka Gillum (Faculty Sponsor)  
Department of Public Health, UMass Amherst  
**Prevention of Child Maltreatment in the United States: a Meta-Analysis**

Out of every 1,000 American children, 22 will be subject to child maltreatment. According to the Centers for Disease Control and Prevention, child maltreatment is defined as all forms of abuse of a child under age 18, including physical abuse, emotional abuse, sexual abuse, and neglect. Childhood trauma leads to mental and physical health consequences through adulthood. This project seeks to define the problem of child maltreatment, including its mental and physical health consequences, examine the risk and protective factors associated with this form of violence, and identify previous intervention efforts designed to address the problem. Interventions of particular interest to the
researchers are those that target not only individuals, but entire communities as well. The research results will be compiled and will inform our development of a related Social Marketing campaign toward improving health outcomes for children, and decrease child abuse across the nation. Social Marketing campaigns utilize commercial marketing techniques to decrease an issue that impacts a large population, in this case children. Our campaign will be targeting not only those affected, but also the abusers causing the trauma. Through our research and intervention we hope to make a strong impact on this Public Health issue that has been burdening the children of America for too long.

**504 Auditorium 1:30-2:15 Board 3A**
Allison Hope
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
A New Look at Reproductive Health

The goal of this research is to identify the inadequacies that exist amongst the current standards of high-school aged reproductive health education, and design a curriculum that will emphasize the coverage of these topics. We have examined specific inadequacies including; lack of coverage of family planning, anatomical processes of the menstrual cycle, PMS, PMDD, conception, and fertility, as well as well-rounded explanations of different forms of contraceptives, STI transmission and prevention, and most importantly, coverage of LGBT issues. A more in-depth reproductive health education will empower individuals to make well-informed decisions about their sexual health starting at a young age, which will lead to better over-all health prospectively. We will evaluate research aimed at affected teaching techniques, current birth control methods, contemporary methods of family planning, and approaches to cessation of cultural biases involving LGBT issues.

**505 Auditorium 3:30-4:15 Board 5A**
Whitney Huynh
Richard Peltier (Faculty Sponsor)
Department of Public Health, UMass Amherst
Developing New Methods to Measure Reactive Oxygen Species Related to Aerosol Components

Reactive oxygen species (ROS) have been shown to be an important indicator of adverse toxicological effects and has been widely studied in the context of ambient air pollution exposure research. ROS is formed in vivo as a result of exposure to ambient air pollutants and is thought to be a convenient approach to understanding responses arising from air pollution exposures. Current methods of measurement for ROS typically follow a labor-intensive and time-consuming method of collection and extraction of particles from the field, which are then introduced (often at very high concentrations) in vitro. The objectives of this research are to streamline these approaches by developing and characterizing a new instrument capable of automated, semi continuous quantification of ROS. The work presented here attempts to fill this gap by repeatedly inducing reactive oxygen on plated immortalized pulmonary epithelial cells (BEAS-2B) which have been loaded with 2′,7′-dichlorofluorescein diacetate (DCFH-DA). The data presented here are based on a method using 96-well plates and standard fluorescent spectrometry methods. These results are compared with similar approaches using a system of horseradish peroxidase and DCFH-DA. Tested elements include micromolar concentrations of hydrogen peroxide, solutions of ammonium sulfate and nitric acid, and quinones. Preliminary results show a dose response relationship when cells are exposed to hydrogen peroxide. There is a difference in the relationship between cells that are just dosed once with DCFH-DA and repeated dosing of DCFH-DA hourly. We show that, with notable limitations, plated cells can respond to repeated dosing of simulated air pollution, suggesting that this method is suitable for further instrument method development.

**506 Auditorium 3:30-4:15 Board 2A**
Rebecca Jurczyk
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
Assessment of the Public Health Benefits of Urban Gardening Projects as a Solution to Food Deserts

Researchers and policy makers have begun to acknowledge food deserts as a public health problem. The USDA defines a food desert as a low-income census tract where either a substantial number or share of residents have a low access to a supermarket or large grocery store. Many movements in United States urban communities have begun to implement
the use of urban gardening to redress the negative health outcomes correlated with food deserts. The objective of our research project is to examine urban gardening projects as a tool to counteract negative health effects of food deserts. Data were collected by an examination of three studies which assessed the public health benefits of various urban garden projects such as improvements in physical activity, access to nutrition and cultural foods, psychological health, economic empowerment. Studies also highlighted the potential soil contamination risks in urban garden development. A significant portion of our project focuses on the success of Nuestras Raices, in Holyoke, MA, in terms of community health improvements. Public health implications include considering urban gardening in urban planning as a way to counteract negative effects of food deserts.

**507 Auditorium 1:30-2:15 Board 6A**

Briana Kelly  
Tameka Gillum (Faculty Sponsor)  
Department of Public Health, UMass Amherst  
Elder Abuse

The purpose of this paper is to review the available literature on the abuse of older adults in various care settings including home-care environments, nursing homes, hospitals, and assisted living facilities. The CDC defines elder abuse as “any abuse and neglect of persons age 60 and older by a caregiver or another person in a relationship involving an expectation of trust.” We will be using the databases PubMed and Goggle Scholar with the key search terms including ‘elder abuse’, ‘older adult violence’, ‘nursing home violence’, and ‘elder neglect’. The older-adult population will be greatly increasing as the ‘baby-boomer’ generation ages. Because of this, it is especially important to consider the current state of older-adult care systems in the United States. While this review will focus on elderly care in the U.S. research from European, Asian, and Middle Eastern countries will be incorporated as well to better reflect cross-cultural findings. It is important to understand the social, psychological, and physical reasons attributing to violence against older adults. Once the problem of elder abuse is better documented, it will become clearer how this problem impacts the field of public health. Upon completing our review of the available literature and data on elder abuse, we will then develop a Social Marketing campaign towards putting an end to this despicable type of violence. Social marketing is an effective way to reach members of the community who may not be aware of elder abuse. Brouchers located in doctors offices, libraries, and community centers will provide succinct information on elder abuse as well as resources for caretakers and older adults.

**508 Auditorium 3:30- 4:15 Board 3A**

Christine McNaughton  
Paul Kostecki (Faculty Sponsor)  
Department of Public Health, UMass Amherst  
The Potential Benefits of Preconditioning in a Clinical Setting.

The ability to cope and respond to stress is a fundamental property of all organisms. Stress can be detrimental to organisms in certain cases when the intensity and/or duration exceeds the organism’s ability to cope. Stress can affect the physiological integrity of an organism in a variety of ways including tissue damage. In humans, when organs are put under considerable amounts of stress above their threshold, infarction occurs and the tissue is impaired. However, there are situations, referred to as preconditioning, where low levels of stress can actually enhance an organism’s ability to cope with additional stress. There are two types of preconditioning methods: preconditioning and delayed onset preconditioning. An example of the former is ischemic preconditioning (application of low levels of stress to the heart) which is an experimental technique that has been proven to reduce the risk of ischemic reperfusion injury in various organ systems within the human body. While there is an impressive amount of preconditioning research on human organ systems, its application to the clinical setting is less common. I hypothesize that preconditioning could produce great benefits clinically if applied appropriately and consistently. Using information from the research literature, my work will focus on identifying and evaluating preconditioning techniques that could be protective and beneficial in the clinical setting. I will focus on three organs: brain, liver and heart. The role of preconditioning techniques for clinical application will be discussed.

**509 Concourse 11:35-12:20 Board 66C**

Mary Sue Mugge  
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
The Wide-Spread Effects of Factory-Farmed Products

Though 95% of meat comes from factory farms, the public has limited knowledge of the negative consequences of factory-farming. Deceptive imagery presented by companies that sell factory-farmed meat has created a false image of modern farming. Fostering this false image of factory farming as natural and healthy, has allowed a system that threatens the health of humans and the environment to flourish. Systematic abuse of animals, spread of disease, and accelerating climate change are all outcomes of factory farming yet the public appears largely unconcerned. This study seeks to determine if awareness education can change opinion about factory farming. A two tiered survey was performed. First, knowledge of factory farming was surveyed. Second changes in perception were gauged following a short educational reading about factory farming. The 200 Bunker Hill Community College students surveyed showed that the public is largely unaware of the negative consequences of factory farming (including deforestation, rendering antibiotics ineffective, accelerating climate change, fostering the spread of disease, contamination of air and drinking water, and abuse of all animals raised on factory farms). Results showed that the educational reading induced a more negative perception of factory farming. These results suggest that education can overcome the apathy surrounding factory farming. This project will increase the understanding of how dietary decisions affect the overall health of the public, not just the individual who makes them, and what motivates the public to change their eating habits surrounding meat.

510 Auditorium 1:30-2:15 Board 4A
Brady Murphy
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
The Holistic Health Approach and How it Could Improve Childhood Obesity in the School System

Childhood obesity is currently a very serious issue of focus among professionals in the field of Public Health. Despite the advancement of medical technology, today's youth is one of the first generations expected to have a shorter lifespan than that of their parents. When considering the various causes, implications, and possible solutions to this current epidemic, our research will be centered on youth school systems. The focus of childhood obesity and school systems is divided into five main areas for improvement. These include: Education, Food Availability, Advertising, Mental Health, and Physical Activity. Along with the dissection of schools systems, improvement techniques will be centered on the idea of a holistic health approach as opposed to solely a medical approach. Holistic health approach focuses on treating all aspects of well being for the individual. This includes tending to the physical, psychological, social, and spiritual needs of an individual. Based on the Holistic approach, disease is thought of as being caused by the imbalance of not only physical aspects of an individual, but also the emotional, social, environmental, and spiritual as well. This may be a more effective way to approach the issue of childhood obesity, as the causes of obesity are not only physical, but rather a result of many contributing factors. Some of these factors include education, food availability, nutrition, physical activity, mental-wellness, social influences, economic status, and region of residence. As we continue our research, we will narrow our topic further by focusing on a specific region of the country that has higher rates of childhood obesity.

511 Concourse 11:35-12:20 Board 65C
Erin Passmore
Susan McPherson (Faculty Sponsor)
Department of English, Quinsigamond Community College
Technology and the Population Paradox

Throughout recent centuries, technological advancements have enabled a dramatic increase in the earth’s population. Focusing on both advancements in food production and medicine can explain how we have been able to so quickly increase the number of people on earth; but will these technologies be able to advance enough in coming years to continue to enable current and future population stability? Conversely, what processes can be implemented now, to ensure stable global population levels in the coming century? In this paper I examine the long term effects of both the Green Revolution and other modern agricultural and food procurement advances as well as the effects of vaccinations and antibiotics on population growth and look to the future to see what advancements in these areas will be required to meet the demands of our changing global populous.
512 Auditorium 9:00-11:00 Board 11A
Katelyn Rennie
Tameka Gillum (Faculty Sponsor)
Department of Public Health, UMass Amherst
Examining Sexual Abuse Among Incarcerated Women in Massachusetts

ABSTRACT Kaja Hopps, Ramilika Santiago, Katelyn Rennie, Esther Boana-Nyarko, Arielle Bryce Today more than one million females are behind bars in the United States and current studies show a high percentage of those women will experience or witness sexual violence while incarcerated. Since 1986 the percentage of women in prison for all crimes has increased 400% with the majority of these offenses being nonviolent. The National Inmate Study conducted in 2008-09 found that nearly 82% of incarcerated women reported pressure to engage in sexual activity from staff members. Using scholarly literature accessed through the University Of Massachusetts Amherst Library database this paper examines effects of sexual violence on incarcerated women as well as the effects on their families and communities. Research indicates that these acts are underreported due to the personal nature of sexual abuse and the power dynamic involved with the perpetrator. In order to eliminate sexual violence against women in prison we have proposed a multi-faceted public health intervention that consists of a social marketing campaign aimed at exploring alternatives to the social justice system and upholding prisoners’ rights by bringing transparency to the system. By addressing these issues with our social marketing campaign we hope to reduce the occurrence of sexual abuse in women’s prisons by increasing public awareness, ensuring the punishment fits the crime by increasing rehabilitation services and allocating more resources to incarcerated women.

513 Auditorium 3:30-4:15 Board 4A
Taylor Sacco
Paul Kostecki (Faculty Sponsor)
Department of Public Health, UMass Amherst
BPA and its effects on women’s health.

BPA and its effects on women’s health. Laning, K., McNaughton, C., Sacco, T. & Stillwell, T. Bisphenol A is a common chemical found in plastic containers and other everyday items such as thermal receipts and canned goods. Its primary function is to make polycarbonate plastics. It has endocrine mimicking qualities, which serves as a concern to human health. It is a difficult chemical to obtain cumulative data on as it is rapidly removed from the system and exposure levels vary everyday. Enough empirical data has been complied on BPA’s endocrine disruption qualities that the FDA has issued a warning regarding the chemical’s use. It so carefully mimics estradiol that it has been targeted as a low dose carcinogen for the majority of hormone based cancers such as breast, endometrial, and ovarian. Women’s health research has also targeted BPA as a harmful chemical for pregnant women showing low birth weight for the offspring of exposed mothers. The FDA does not have sufficient evidence to ban the use of BPA due to the difficult research qualities of this complex chemical but it hypothesized as a dangerous carcinogen especially for women. Through careful literature review of both human and animal studies on BPA’s health effects it is our belief that BPA does not have enough public health importance. Attention must be brought to the constant exposure women face everyday and how they can reduce their risk. Keywords: bisphenol a, BPA, breast cancer, epoxy resin, polycarbonate plastics, endocrine disruption, estradiol, estrogen, pregnancy, birth defects, FDA, carcinogen.

514 Auditorium 1:30-2:15 Board 5A
Christopher Dreher
John Donovan
Lauren Roche
Nicole Owen
Brendan Toohey
Tameka Gillum (Faculty Sponsor)
Department of Public Health, UMass Amherst
Picture This. See Happiness. A World Without Suicide.

Suicide is a serious public health issue with one person killing themselves in every 15 minutes, and people attempting
every 40 seconds in the United States. In national statistics from the Center for Disease Control, “In 2009, suicide was ranked as the 10th leading cause of death among those ages 10 years and older, accounting for 36,891 deaths.” Suicide is ranked the 3rd leading cause of death for youth, age 15-24, which follows accidents and homicides. Worldwide there are more deaths from suicide, than accidents, homicide and war combined. SOCIAL MARKETING CAMPAIGN – THE SOLUTION As a group we want to create a social marketing campaign that helps combat the underlying causes of suicide, especially in high-risk populations. Social marketing uses commercial marketing techniques to improve social problems. We want to raise awareness about suicide, hopefully to change the behavior of a large number of people over a long period of time. Our social marketing campaign will utilize Twitter and Facebook to target the most at risk populations for this issue. Our idea for a social marketing campaign was to create something that transcends the boundaries of race, religion, age, sex, gender, sexual orientation and socioeconomic status. We decided create a campaign called “picture this. See Happiness.” This is a series of photos and support systems that promote positivity, unity, and happiness.

RELIgION STUDIES

515 Auditorium 2:30-3:15 Board 30A
Patricia King
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
The Increasing Unimportance of Religion

An of element of religion exists in almost all cultures. Religion has always played a significant role in the lives of any group of people, including the people of America. In times past, religion was the driving force behind the activities of the nation. It was the center of everyone’s life, and the object of their thoughts. Today the importance of religion has shifted. Instead of looking to religion for guidance on how to live, dress, and look for a partner, people are turning to popular media. This study seeks to investigate the role that popular media sources such as music videos, reality television and sitcoms play in guiding American values and ideas. With the use of surveys, and in depth interviews, this paper provides evidence that the decreasing importance of religion in American society correlates with the increase of immorality in the country. In conclusion, this study offers ideas on how best to cope with these changes in society.

SOCIAL THOUGHT AND POLITICAL eCONOMy

516 Auditorium 3:30-4:15 Board 6A
Josiane Fofana
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
Africa: A continent of contrasts

Africa is often perceived as an overall “poor continent.” This generalization fails to reflect the socio-economic diversity of its 55 countries. In the past decades, many African countries have improved socioeconomic conditions while others remain in poverty. This research investigates why and how some African countries have improved while others have not. The analysis focuses on South Africa, Nigeria, and Somalia, three distinct African countries ranked according to a decreasing level of development. These countries are compared based on their socioeconomic differences and on an analysis of outside influences such as weather shocks, military conflict, high immigration rates and political turmoil. The research identifies strategies that have helped the more affluent countries in this study raise their socioeconomic status. In conclusion, the study offers analysis on how improvement strategies from the wealthier African countries could be applied to improve socioeconomic conditions in Somalia and other poorer African countries.

SOCIAL WORK

517 Auditorium 2:30-3:15 Board 37A
Beth Dube
James Grady (Faculty Sponsor)
Department of English, Bristol Community College
Deaf Siblings/Psychology and Support Systems
This project will take an in-depth look at siblings wherein at least one is hearing and the other is Deaf. What is the dynamic of their relationships; communication strategies, understanding of each other’s needs, how they cope with the barriers that they face as siblings? Could there be support groups created with structured activities to focus on these issues that would be beneficial to them? The project will also widen its lens to consider that such supports may prove beneficial to other families in which one of the siblings has a disability.

518 Auditorium 2:30-3:15 Board 38A
Stacy-Ann Hylton
Kathleen Pahl (Faculty Sponsor)
Department of English, Massasoit Community College
Deinstitutionalization Of The Mentally Disabled And Society’s Response

Mentally disabled people during the eighteenth and nineteenth centuries were considered by most of society to be useless and a burden. These individuals were subsequently removed from their families, from their communities, and placed in mental institutions. The treatment, or lack thereof within these institutions was brutal; the emotional, psychological, physical, and sexual abuses were inhumane. At the turn of the twentieth century, public outcry drew much attention to the tragic institutional system in America. With help from the New Frontier Movement and John F. Kennedy’s legislation, the Mental Health and Community Centers Construction Act was passed in 1963. This was followed by the Americans with Disabilities Act of 1990 which further allowed disabled individuals to find gainful and equal opportunity employment privileges in their communities. Today massive deinstitutionalization is enacted whereby former institutional residents are integrated back into society, many of whom now live in local and suburban neighborhoods. This approach has been met with objection from some neighbors within said communities who believe their safety, security, and property value are threatened when living alongside a group home for people with varying behavioral and social disabilities. However, though neighborhood concerns are sincere, research, statistics and personal anecdotal research experiences demonstrate that the majority of patients/clients within such group homes assimilate remarkably well into their communities with the aid of proper treatment, training, and round the clock staff supervision, thereby disproving opponents’ fears and proving deinstitutionalization to be a humane and effective treatment.

519 Auditorium 2:30-3:15 Board 39A
Tatiana Jean Noel
Susan Martelli (Faculty Sponsor)
Department of English Literature, Massasoit Community College
The Forgotten Generation

Many states across the United States are currently faced with escalating crime rates, homelessness, drug abuse and other preventable lifestyles. Contributing to these problems is a policy of the foster care system known as Aging Out, which forces children to leave foster care at age eighteen. Often they leave without receiving proper education, mentorship, or guidance to help them choose positive behaviors and goals to live successfully as independent citizens. As a result, foster care abandons these teens, because many of the aged out teens end up incarcerated or on a path to self-destruction. Through the proposed organization “reMakE” (pronounced Remake Me), this project explores strategies to implement a curriculum and mentorship program focused on aiding young people in the transition from foster care to adulthood. In addition, proposals will be submitted to advocate for policy reforms to mitigate and eventually alleviate the problem.

SOCIOLOGY

520 Concourse 11:35-12:20 Board 67C
Christopher Amos
Mary Kay Cordill (Faculty Sponsor)
Department of Sociology, Cape Cod Community College
The Trouble with Men and Intimacy

Intimacy is the experience of emotional closeness that occurs when two people trust each other enough to be willing to be emotionally open about their true feelings, thoughts, fears and desires. To be intimate with another person is
to run the risk of being vulnerable. Why do men have such trouble with intimacy? In our society men are brought up with the belief that they must be strong and “to be competitive, that feelings are a sign of weakness and to avoid vulnerability and dependency at all costs.” (Cloke 2012) We are told to “act like a man” (Solin 2011). Dr. Kal Heller, a licensed psychologist writes that “Intimacy is very risky because it requires making such a serious commitment to the relationship that each person will experience a sense of dependency on the other. To admit to needing someone else is to risk loss and deep hurt.” (Cloke 2012) Almost from birth men have been trained to be strong, independent and invulnerable. Men have also been made to believe that showing feelings are a sign of weakness. Is there any wonder that since intimacy requires a man to open himself up to the extent that Dr. Heller suggests, why men struggle with the concept? This research project will explore the difficulties and reasons why men struggle with understanding and positively responding to intimacy.

521 Auditorium 1:30-2:15 Board 47A
Ashley Guzzi
Anna R Katz
David McNeill
Holly Arsenault
Vincent Ferraro (Faculty Sponsor)
Department of Sociology, Framingham State University
The Second-Generation: Can they still make it in America Today?

Immigration has become a prominent issue in American politics and society. Recent data suggest there are approximately 50 million documented and undocumented immigrants living in the United States. This begs the question of how prosperous future generations of contemporary immigrants will be as they establish themselves in American society. This study focuses on second-generation Americans, and attempts to see how well they are able to thrive in U.S. society; with the broader purpose of understanding whether or not America is still the land of opportunity for all of those seeking a new life here. Existing research suggests context of reception, blocked opportunity, educational factors, and the belief sets of immigrant parents affect the integration experiences of the second-generation. This study employs quantitative analyses of secondary data, taken from the Children of Immigrants Longitudinal Study 1991-2006, which is a three-panel study that surveyed approximately 2,500 second-generation immigrants along with their parents. The researchers expect the results to show that second-generation immigrants who actively immerse themselves into American society through socio-economic status, adopting American cultural values and shared beliefs will be more likely to experience a greater degree of integration. Though attitudes towards immigrants tend be negative, this study hopes to remove the social stigma against immigrants by showing that the children of immigrants are still able to successfully integrate into the United States, while also making valuable contributions to society.

522 Auditorium 3:30-4:15 Board 7A
Cory Berndt
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusett Community College
Technology and Medical Records

Included in the American Reinvestment & Recovery Act of 2009 was a push toward the national use of electronic health records (EHR). As an incentive the federal government is providing funding toward the goal of national EHR’s through the HITECH Act. The purpose of this study is to investigate how electronic medical records effect the patient/healthcare provider relationship, privacy concerns, and the accuracy of documentation. Research will be gathered using scholarly articles along with other reputable sources. Use of electronic health records allows providers to streamline medical care but it can also place an individual’s privacy at risk by allowing providers access to more information than medically necessary. Healthcare providers have the ability to document their findings with a click of a mouse but an accurate description of the patient’s condition or care provided by medical personnel may be lacking. In conclusion, use of EHR’s has the ability increase access to records and improve documentation efficiency; when not used appropriately it places the patient/provider relationship at risk and can even lead to legal issues.
Dancing with Myself?: Social Isolation in the United States

In recent years social scientists have noted that communities in the United States are becoming increasingly fragmented as people become more socially isolated. The researchers have chosen to study the impact of social isolation in the U.S. and its effect on quality of life. Robert Putnam noted in Bowling Alone that decreased levels of civic and social engagement have led to an unraveling of the social fabric in the U.S. This research revisits the topic in an investigation of how social isolation impacts the quality of individual lives. The researchers use the Bowling Alone data-sets, comprised of the responses of 43,360 individual Americans in mail surveys from 1975 to 1998. The researchers utilized a cross-sectional approach to explore the dimensions of social isolation as the independent variable; including community and network involvement and perceptions of one's overall level of social isolation. The research hypotheses will correlate these independent variable indicators with dependent variable indicators of quality of life, such as personal and career satisfaction. The researchers expect to find that, as social isolation increases, the quality of life decreases when controlling for income and other demographic variables.

Beauty Over Brains: Aesthetic Labor of Employees in Clothing Retail Stores

Low-wage workers employed in retail clothing stores are not only hired for skills on their resume, but also for their appearance and demeanor, known as aesthetic labor. While other scholars have studied the aesthetic labor of women in retail clothing, there has been a lack of discourse about men's experiences, and how these two differ or relate to one another. Through observational research done at the clothing store Abercrombie & Fitch in three locations, content analysis of YouTube videos of former and current employees, and interviews, this paper explores how aesthetic labor for retail clothing workers intersects with gender. While men and women employees are hired based on attractiveness, their work duties are not always the same. Surprisingly, men are less likely than women to perform manual labor, such as stocking shelves or dressing mannequins, but are in more customer oriented positions, such as front of the store greeter, a position given to the most physically attractive employee. The findings reveal that the emphasis on aesthetic labor skills is emphasized for men more than women in this particular clothing retail store. This emphasis on physical appearance in acquiring a low-wage job has repercussions for how our society teaches young adults what skills they need to get a job, and how objectification of both women's and men's bodies is apparent in the workforce.

Now Frending on FB: Problematic Electronic Communication Amongst Teens

Internet use has become one of the most common forms of communication today, especially among teenagers. Technological advancements have established a world where teens can use electronic devices to access the Internet and be connected socially at all times. With this increase in Internet use, the threat of problematic Internet behavior is a more prevalent and realistic concern. The researchers define problematic Internet behavior as inappropriate Internet
communication that can lead to conflicts in multiple aspects of life. These conflicts can present themselves as fights in school settings with peers or arguments with family members at home. The researchers seek to examine how social factors may affect teens’ problematic use of electronic communication. The researchers used data from the PEW Teens and Online Behavior Dataset (2011) to examine the roles that parental monitoring, social competence, bystander behavior, and quality of parent-child relationships play in problematic online communication. This study sampled 800 parent-teen pairs and included an oversample of African-American and Latino respondents. The researchers expect to find higher levels of problematic Internet use associated with lower levels of parental monitoring, higher levels of teen social competence, higher levels of witnessing cyber bullying, and lower quality relationships with parents.

526 Auditorium 2:30-3:15 Board 9A
Joseph R Chapdelaine
Victoria V DeVincent
Eric D Walsh
Rico DePaolis
Vincent Ferraro (Faculty Sponsor)
Department of Sociology, Framingham State University
The Demise of Face to Face Interaction? Frequent Use of Technology and its Effect on Civic Engagement

The growing use of and dependence on technology and its outlets have demanded more attention to the possible effects of its use, especially on social interaction. The purpose of this study is to examine how participation in electronic leisure activities can affect one’s involvement in the community, primarily amongst adolescents. This study draws from literature that supports varied findings dealing with frequent technology use and its effect on one’s civic engagement. The researchers perform quantitative analyses of the data collected by the Pew Internet and American Life Project. Drawing on the existing literature, the researchers identify two central theories. According to cultivation theory, the researchers expect that the more one engages in electronic leisure activity, the less likely it is that he or she will be civically engaged. According to content theory, the researchers expect negative content to bring negative actions and positive content to invoke positive actions. Many technological activities performed by teens and adolescents today require a large amount of solitary time. This creates a gap between them and the real world that they will one day need to contribute to. The researcher’s main objective in this study is to shed light on this ever changing relationship between technology and civic engagement, in an effort to uncover the positive and negative outcomes.

527 Auditorium 2:30-3:15 Board 5A
Patrecia S Bradshaw
Jacquelina Fontes
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
Working Hard or Hardly Working?: A Look at Intersectionality and its Effects on Attitudes towards Wealth and Poverty

Although assumptions about the poor and rich in the U.S. vary depending on one’s, sex, region, class, and race, there is little analysis that combines these variables in an analysis of how we view poverty and wealth rather than looking at them separately. The researchers will explore individual beliefs about the origins of wealth and poverty in the U.S. using intersectionality theory. This study will allow the researchers to identify how race, class, sex, and region combine to shape individual attitudes towards wealth and poverty. The researchers used data from the General Social Survey of 2010. The cross-sectional survey sampled over 5,000 adults living in the U.S. The researchers used indicators such as attitudes towards government spending for the poor and explanations for poverty to measure the dependent variable. They expect to find that those who experience more privilege will be more likely than others to see poverty as the result of individual and cultural deficits, and those who experience more oppression will be more likely to see poverty as the result of structural factors.

528 Auditorium 1:30-2:15 Board 48A
Melanie H Olson
Sara Halloran
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusetts Community College
Risk and Reputation: The Life of Teens Using Social Media Sites
The purpose of this research project is to determine how safe the information you put on the internet is and how easily it could be accessed by a third party. In today’s society the use of social media is prevalent and allows people the ability to connect with others, whether it is through Facebook, Twitter, or even email. With the younger generation becoming more involved with technology and social media, it is important to understand the risks that they put themselves in when they post or share their information online, including age, address, photographs, and workplace on the internet for people to see. More education and warnings need to be given to those who use social media sites in order to prevent users from being at risk for harm, including fraud and identity theft and also to protect their safety and reputations. The research used for this project was found through research databases and scholarly sources which include surveys, articles from international journals, and studies completed that look into risk and security on social media sites. Most of the information found in these surveys and studies was focused on teens and young adults since this is the population that uses social media sites the most and this is the population that is at highest risk for invasion of privacy and corruption of their reputation which can impact their employment status and self-image. After reading through these studies and surveys, it has come to light that not all social media sites maintain your privacy. The statistics have shown that those who use social media sites, especially teens, increase their risk of becoming victims of sexual assaults. Even if a site claims to have high privacy settings, there is still a question of whether or not someone can access the information. Our research has found that the information you put on social media sites is not safe and could potentially affect people in many negative ways.

529 Auditorium 2:30-3:15 Board 6A
Ashley N Hogan
Irene P Titus
Lauren Kasprzak
Julia Hartley
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
Silver Linings and the Golden Years: What Can Seniors Do to Live Happy Lives?

In the United States, reaching the age of 65 and senior citizenship can be stressful; people become concerned with becoming frail and forgetful, and possibly losing independence. The emotional, medical, and financial needs of the elderly are often overlooked. Baby boomers are becoming an aging demographic group, increasing the proportion of seniors in the larger population. The researchers used social integration theory to explore which social factors contribute to successful aging. They defined successful aging as experiencing a self-reported sense of overall well-being and happiness in old age. Cross-sectional data were analyzed from the 2010 General Social Survey (GSS) dataset. The total number of people sampled in the dataset was 4,901; the researchers edited the dataset to include only the 990 respondents aged 65 and older. They looked at a number of variables to determine the social factors that contribute to successful aging. The variables include economic status, cumulative social inequality, social involvement, religiosity, and physical wellbeing. The researchers also analyzed demographic independent variables, including region of residence, race, and gender. They expect to find that people with higher levels of economic security, social involvement, religiosity, and physical health and lower levels of cumulative socio-economic deprivation will age more successfully than will others.

530 Auditorium 1:30-2:15 Board 46A
Courtney Gelinas
Diem Tran
Elizabeth Nixon
Jennifer E Barra
David Holmes
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
“Mom! Jamie’s being a jerk!”: An analysis of the quality of sibling relationships

Mom, Jamie’s Being a Jerk: An Analysis of the Quality of Sibling Relationships The quality of sibling relationships can make significant impacts on individuals’ experiences within families and in the outside world. Children who have positive relationships with siblings show greater emotional and social understanding, cognitive abilities, moral
sensibilities, and better psychological adjustment. Researchers will examine social factors, both internal and external to families, which may influence the quality of sibling relationships. Most studies on sibling relationships evaluate the consequences of the quality of sibling relationships; this research will focus on the predictors of the quality of sibling relationships. To address the research question, the researchers used the National Longitudinal Study of Adolescent Health data set, which is a longitudinal study of a nationally representative sample of adolescents in grades seven through 12, ranging from ages 18 to 29. The data set measures respondents’ perceptions of the quality of their relationships with siblings and self-reported levels of familism, levels of anti-social behavior, conflict strategies, quality of parental treatment, and shared values with siblings. The researchers predict higher quality sibling relationships in people who have high levels of familism, low levels of anti-social behavior, strong conflict resolution abilities, adequate parental treatment, and shared values with siblings.

531 Auditorium 3:30-4:15 Board 10A
Kaitlyn Humphrey
Steven Boucher (Faculty Sponsor)
Department of Sociology, UMass Amherst
Career Paths and Career Trajectories of Prosecuting Attorneys in Western Massachusetts

This thesis focuses on the professional identities and career trajectories of practicing prosecutors throughout Western Massachusetts. Specifically, I ask what factors led these lawyers to pursue this particular type of legal practice and how they view their role within the American criminal justice system. To address these research questions, I constructed a snowball sample of fifteen local prosecutors whom varied in professional experience, age, and gender. These interviews were semi-structured, lasting between 30 minutes and 1 hour, focused on their experiences in practicing law and the reasons for entering the profession. My findings suggest that prosecutors overwhelmingly love their job and find a sense of satisfaction in the profession. However, the individual meanings attributed to their work vary in important ways. My interviews suggest that there is a split between lawyers who enter prosecutorial work in order to further justice and those that have more pragmatic views about their role within the profession. My interviews also suggest that there are various paths to prosecutorial work. Many entered the profession by chance or through established networks. Overall, my findings suggest that prosecutors come to understand their role within the profession in interesting, but varied, ways. These findings support the idea that professional socialization is not a unitary process and is mediated by variation in lawyers’ backgrounds and worldviews about law and justice.

532 Auditorium 3:30-4:15 Board 8A
Charles Jonsson
Scott Benjamin (Faculty Sponsor)
Department of Biology, Bunker Hill Community College
There and Back Again: The Rise of Religion and Its Eventual Decline

One of the largest sources of what has motivated and driven humankind throughout history is conflict between religious beliefs. It is therefore of great importance that we identify current religious trends in society as well as the underlying reasons for such trends. This knowledge allows us the opportunity to consider whether such a trend is beneficial or detrimental to society as a whole, and whether we should strive to promote the continuation of the trend or act to depress it. This study analyzes current trends in religiosity and explains how and why such trends are occurring. Measurements of religiosity were taken from public opinion polls on the importance of religion in daily life (WIN-Gallup International, The Global Index of Religiosity and Atheism). These polls indicate the countries in which religion has increased- and where it has decreased in importance over the past decade. Religiosity was also measured by comparing recent numbers of members of different organized religious sects to past membership. Analysis of these trends suggests that the increase in incidental factors within the society, such as scientific advancement, and education are correlated with the decline in the religiosity of the society. The research concludes that secular groups devoted to creating a sense of community and belonging for its members, an area traditionally left to religious institutions, have begun to emerge across the world. These apparent trends foreshadow a society that is becoming increasingly less religious and would, if allowed to continue, likely lead to a world where large organized religious institutions are supplanted by and large by secular institutions.
Presenters • Poster Sessions

533 Auditorium 1:30-2:15 Board 42A
Guernslye Honore
Tia Long
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusett Community College
Parenting and Social Media

Technology is a great way to communicate, but it can be very detrimental to the children of this society. Parents must intervene, and become more aware that over use of social technology can lead to depression, anxiety and social awkwardness in children. Children get so used to text messaging, chatting and calling people on the phone that when they meet people face-to-face, children don’t know how to talk to them. Social media makes it possible to spend an entire day talking without uttering a word. Although social media is not itself causing these social issues prolonged use of them is, and can be easily avoided with setting healthy limits. Through research of scholarly articles, we have come to the conclusion that although technology can be helpful in many arenas, it is also damaging young people in both the social and psychological aspects.

534 Auditorium 2:30-3:15 Board 10A
Ammari A Edwards
Jennifer Cortes
Kristen M Lynch
Kelsi V McNamara
Riley Mackin
Vincent Ferraro (Faculty Sponsor)
Department of Sociology, Framingham State University
Attitude is a Little Thing That Makes a Big Difference: The Exploration of Family Structure and its Effects on Attitudes

This research questions the relationship between living arrangements and attitudes towards traditional values in modern American society. The researchers conduct quantitative analyses of secondary data derived from the Pew Survey on Marriage and Parenthood, which is based on a nationally representative sample by the Pew Research Center on Social Trends. Drawing from existing research on the theories of Joint-Utility Maximization, Sex Role Liberalism and Relational Relevance, the researchers expect to find that couples who cohabitate without marrying are going to hold more liberal views on shifting social values than married counterparts. Researchers also expect to find that those who anticipate marrying are more likely to value religion as an important decision maker in a relationship than those who do not. The researchers lastly expect to find that those who have previously cohabited are more likely to value shared household roles in a successful marriage. This research illustrates how modern living arrangements contribute to shifts in attitudes and beliefs, suggesting that social structure has a direct effect on family structure which therefore influences cultural beliefs and norms. The research hopes to contribute to the understanding of current familial social trends.

535 Auditorium 1:30-2:15 Board 41A
Brittni Motyka
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusett Community College
Google Me

Over the past five years, there has been a dramatic increase in the number of employers who use technology to their advantage in hiring new employees. Employers are now using Google to research prospective employees to see if they are suitable for the job, and to get an idea of what candidates’ personalities are like. After analyzing several scholarly articles we found that more than half of employers are looking at applicants’ Facebook, Twitter, and LinkedIn accounts, as well as other social media sites, to assess whether or not applicants meet their standards. Of that half, one fourth of employers report that they are glad they took the time to look online and find out whether or not the candidate would be a good choice. They state that this helped them to gain knowledge of the candidates that would or would not meet the standards they set for determining “good” employees. These scholarly findings help to assure that those seeking employment need to think before they post, for they never know who may be Googling them.
536 Auditorium 3:30-4:15 Board 11A
Lisa Ray
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusett Community College
Security, Privacy, Risk-Protecting Financial Information and Bank Accounts As Technology Continually Evolves

As the information about our lives becomes more computerized and technology continues to evolve, the need to protect personal information, financial information, and bank accounts is becoming necessary for everyone. In order to protect privacy, it is no longer enough to use fancy passwords or look over your shoulder in a public place to make sure no one is watching your computer screen. The use of credible scholarly literature and documented actual events will show examples of how, in the banking and financial industry, security and privacy are constantly being breached by computer hackers and the avenues that financial institutions must take to protect their customers’ information and money. We will focus on two areas that affect financial institutions and their customers: debit card fraud and wire transfer fraud. Financial institutions are better able to stop these crimes through the use of security tokens, advanced password options, better computer firewalls, and consumer education on fraud. Although it will always be a risk for personal and financial information to be available on the web, there are ways to keep that risk minimal.

537 Auditorium 9:00-11:00 Board 40A
Lourdes Abreu
Heather Rick
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusett Community College
Minority Communities and Social Technology

Over the past two decades, as the Internet and social media have become more integral to our daily lives, countless studies have been conducted to better understand the ways in which technology affects human interaction. As ever more intimate aspects of our lives are being touched by these technologies, it is beneficial for minority communities to look at the specific ways they use them. This presentation focuses on the ways racial and sexual minorities use the Internet and social technologies. These minorities use such technologies for community support and “safe spaces,” self-expression, and identity building. Research will make use of scholarly articles. The Internet and social media have both negative and positive effects on the way minorities build and navigate community. Positive aspects include access to supportive community, unbiased information, and social and activist organization. There are negative aspects and frustrations however. Social media can highlight or give vent to in-fighting or internalized racism/homophobia within communities. Technologies are not being used to their full potential to foster activism and social organization and engagement. This paper will look at some of the ways social media could be better utilized to promote community building and advance social and activist organization, rather than simply serve as vehicles for entertainment, pop culture and gossip. We found that while the positive aspects of social media outweighed the negative for sexual minorities, the same was not true for racial minorities.

538 Auditorium 1:30-2:15 Board 44A
Kate D Oleson
Travis Kennedy
William A Levitsky
Amy Sequeira
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
Sex Education: Is It Really Teaching Teens to Have Safe Sex?

In the United States today, many sexually active teens face serious repercussions of their sexual choices. These include teenage pregnancy and sexually transmitted diseases (STDs). Despite recent declines in teen pregnancy rates, over 800,000 teens get pregnant each year. One in four sexually active teens will contract an STD before adulthood. The researchers used the theory of reasoned action to examine how sexual education impacts teenage sexual behavior. The researchers analyzed data from the Henry J. Kaiser Family Foundation’s 1999 Benchmark Survey on Sex Education in America, which included responses from 1,501 pairs of students and parents in the United States. The survey included
information on whether or not the respondents were exposed to sexual education, and if so, the respondents’ ratings of their sexual education. If the respondents had not received sexual education, they were asked for the reason why. The survey also included what type of sexual education was received in terms of abstinence only or comprehensive, and any knowledge that the teens took from their sex education classes. The researchers hypothesize that as respondents’ rating of sexual education increases, their likelihood of engaging in risky sexual behavior decreases. The researchers expect younger teens are more likely to implement the knowledge learned in sexual education than older teens. They also hypothesize that teens who take part in abstinence-only programs are more likely to practice unsafe sexual behavior than those who receive comprehensive sexual education.

539 Auditorium 1:30-2:15 Board 45A
Carl Sheppard
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
Delinquency in the U.S.: Sociological Perspectives

Juvenile delinquency is a problem that plagues communities across the United States; according to the Office of Juvenile Justice and Delinquency Prevention, in 2010 there were 4,857 arrests for every 100,000 youths ages 10 through 17. The researchers will investigate social aspects in juveniles’ lives that can contribute delinquent behavior. The researchers used the “Monitoring the Future” dataset, based on a survey conducted in 2006 that consisted of 14,814 students enrolled in 136 total public and private high schools to investigate correlations between family structure, religiosity, self-aspirations, and education in juveniles’ lives and levels of delinquent behavior such as drug and alcohol use, truancy, and arrests. The researchers expect to find that juveniles with higher self-aspirations and religiosity and higher levels of academic achievement will be less likely than will others to engage in delinquent acts. The researchers also predict that juveniles with an absent parent and a larger number of siblings are more likely than others to engage in delinquent acts.

540 Auditorium 2:30-3:15 Board 7A
David H. Sakkos
Sergio J. Labathe
Jerome Watson
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
Marriage Redefined: Changing Attitudes about Same Sex Marriage in the U.S.

In recent years attitudes towards homosexuality in the U.S. have changed dramatically; as a result same sex marriage is now legal in nine states. Researchers used the 2010 General Social Survey to determine the extent to which social factors predict attitudes towards same sex marriage. Researchers expect to find correlations between gender, region, social status, political ideology, and race and attitudes towards same sex marriage. Researchers expect to find that support for same sex marriage will increase as education levels and income levels increase. They also expect to find that those with conservative political ideologies will be less likely than others to support same sex marriage and that Christians and Muslims will be more likely to disapprove of same sex marriages than will those from other faith traditions. The researchers expect to find that divorced or separated respondents are more likely to approve of same sex marriage than are those who are married or widowed and that blacks are less likely to approve of same sex marriage than are those from other racial/ethnic groups. They also hypothesize that women are more likely to approve of same sex unions than are men, and that people who reside in the Northeastern U.S. are more likely to accept same sex unions than those who reside in the South.

541 Concourse 11:35-12:20 Board 68C
Christina Wiggins
Susan Taylor (Faculty Sponsor)
Department of Sociology, Mount Wachusett Community College
The Unseen Risks of Online Dating

Many single people are turning to online dating sites that suggest or promise to find them a match, but who are unaware of the unseen risks associated with various services. The uniqueness of this study is that the research can
be applied to the entire market of internet users. However, online dating does expose a person to many individuals claiming to be in search of love; nevertheless this option opens the door to many risks including metadata, geotags, applications, or software designed to detect hidden files that disclose personal information pertaining to user information. It is crucial that individuals are aware of the risks that could potentially lead to identity theft, financial loss, stalking, or bodily harm. The scope of this research will examine these unseen risks of online dating and suggest steps that will provide protections while interacting online. The results and statistics from various articles, and periodicals, will show that many of the sites associated with online dating do not disclose the dangers explored in this study. Although, sites offer dating tips, they neglect to state how safety and privacy can be compromised other than what is known to the public in general. Because many companies disclose that they do not run criminal background checks, it is very important that people take steps to communicate in a safe and comfortable atmosphere. There is ample opportunity to improve online dating in the future but the uniqueness of this study is the research can be applied to the entire market of internet users.

SOCIOLOGY, ANTHROPOLOGY, AND CRIME AND JUSTICE STUDIES

542 Auditorium 2:30-3:15 Board 11A
Katherine G Collentro
Michelle Bolduc
Marian Cohen (Faculty Sponsor)
Department of Sociology, Anthropology, and Crime and Justice Studies, Framingham State University
Parenting Styles and the Mediation of Videogames

Our study examines parenting styles using parental mediation tactics with regard to adolescent video gaming. As popularity of gaming increases, so does the need for mediation. Based on Gfroerer’s classification of the three parenting styles, authoritarian, authoritative, and permissive, we analyzed the different levels and types of involvement based on influencing factors such as income, education, perceived influence of videogames, and age and sex of the parent and child. We hypothesized that these characteristics lead to a more permissive style of parenting: older age of parents, older age of children, greater education of parents, a more positive perception of videogames, being a male parent, and having a male child. In contrast, characteristics that contribute to a more authoritarian style of parenting include: younger age of parents, younger age of children, lower education of parents, a negative perception of videogames, being a female parent, and having a female child. Although there are three parenting styles, we opted to only look at authoritarian and permissive, the two extremes, with the assumption that authoritative will fall somewhere in the middle. Data from the Pew Study on Teens, Gaming, and Civic Engagement, with a national sample of 1,102 parents of 12-17 year-olds as well as 1,102 12-17 years old in the United States, were used to conduct secondary analysis. Age and sex of the child were found to be the most significant in determining the applied style of parenting. Younger children were more heavily supervised than were older children. Sons were supervised more than were daughters by both mothers and fathers. Other relationships were only partially supported or the findings were found not to be significant.

543 Auditorium 2:30-3:15 Board 42A
Kerryanne Celona
Monica Poole (Faculty Sponsor)
Department of History, Bunker Hill Community College
Art Therapy for Reducing Recidivism

Art therapy enables individuals in high stress environments to better express emotions that may be difficult to verbalize. Research suggests prisoners following art therapy programs have increased control of their behaviors and are overall mentally healthier. However, there is limited research supporting art therapy programs for reducing recidivism rates. Research on this topic will be collected from primary source interviews and previously conducted case studies. At this time, there is strong evidence suggesting improvements in self-esteem, attitudes, and behaviors among inmates following an art therapy program while incarcerated. Still, at this time there very few examples of using art therapy programs to deter recidivism.
544 Auditorium 2:30-3:15 Board 40A
Erin Cournoyer
Dennis Roderick (Faculty Sponsor)
Department of Sociology, Anthropology, and Crime and Justice Studies, UMass Dartmouth
A Needs Assessment of Victim Response and Recovery Services at the University of Massachusetts Dartmouth

Victim response and recovery initiatives are a topic that affects every university in our country yet is seldom spoken of or addressed by school officials and students alike. A needs assessment of our current system for victim response and recovery could ignite the conversation and generate change. In order for students to feel safe, it is imperative for students to know where to go, who to talk to, and how they can seek resolution as a victim/survivor of violent crime on campus. To assess and identify UMass Dartmouth’s current victim response and recovery initiatives, a comparison of the various institutional responses was conducted through interviews with officials across several UMass campuses, interviews with victim advocacy programs, and anonymous surveys from victims/survivors of violent crime on the UMass Dartmouth campus. The goal of this research was to identify potential needs and make recommendations for policy improvements based on several national best practice guidelines. Improvement strategies will target interdepartmental collaboration and communication to increase awareness of victim needs and to create a communal dialogue between administration, faculty and students that encourages a safe reporting environment.

545 Auditorium 2:30-3:15 Board 41A
Jessica Levy
Robin Robinson (Faculty Sponsor)
Department of Sociology, Anthropology, and Crime and Justice Studies, UMass Dartmouth
Perceiving Teenage Pregnancy and Parenthood: Social Constructions, Public Dilemmas, and Profiles of Need

The post-World War II decades in the United States have seen adolescent pregnancy and parenting move from the norm and expected, to taboo and hidden, and now is back as something of a media spectacle, creating a public caricature that may have little to do with realities of teen mothers’ lives. Media alternately sensationalizes teen pregnancy and parenting, creating a form of entertainment as a collective outlet for public anxiety about teenage girls and sex. Currently popular television shows like Teen Mom and 16 and Pregnant on MTV produce negative scripts of teen pregnancy that serve as backlash against teen sexuality in public, reintroducing the subject into the public discourse. Because of these shows, people might believe that teen pregnancy is at an all time high when it is actually close to an all time low. Because of this commodification of teen girls’ sexuality, stereotypes of these young mothers have increased as well in various forms, obscuring real needs and useful policy responses. The aims of this study are: 1. To understand differences between public views of teen mothers and teen mothers’ views of themselves; 2. To understand differences between what people believe about teen mothers and what is actually true, according to published research; and 3. To understand origins of the stereotypes. Surveys conducted among students, faculty, and staff at a public university provide insights into reasons behind and inaccuracies of these stereotypes, to produce a counter-argument to media sensationalism of this population of young women in need of social supports.

546 Auditorium 2:30-3:15 Board 12A
Ryan Puzzo
Susan Dargan (Faculty Sponsor)
Department of Sociology, Framingham State University
Dealer, I Am Going All In (A Look at Social Factors that Influence Gambling Behavior)

With legalized gambling as an increasing social phenomenon and casinos popping up all around us, it is important to understand factors associated with problem gambling behavior. The researchers plan to use general strain theory to examine social factors that influence individual gambling behavior. The researchers will analyze data from the 2006 Pew Gambling dataset, which includes a sample of 2,250 participants. The dataset measures gambling by asking respondents to self-report about gambling frequency. The researchers expect to find higher levels of gambling associated with lower levels of religiosity, heightened levels of emotional arousal while gambling, proximity to casinos, and lower socioeconomic status levels. They also hypothesize that men will have higher levels of gambling issues than women in all gambling categories.
STOCKBRIDGE SCHOOL OF AGRICULTURE

547 Auditorium 3:30-4:15 Board 13A
Liz Altieri
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Bridging the Gap Between English and Sustainable Food Studies

This project will explore a much-needed bridge between two seemingly disparate subject areas: English and Sustainable Food and Farming. The two “fields” seem to exist within their own respective bubbles, and to be interested in both is, very often, to be two separate people. Interviews and discussion with individuals who have successfully bridged these two areas of interest in their own lives will be shared with others on a blog as the project takes shape. This exploration will ultimately form the basis for piercing together a larger picture of how to utilize one’s passions in a personal and socially holistic way.

548 Auditorium 3:30-4:15 Board 20A
Ashley Barrett
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Wellness Farm: An Education Center for Self-Sustainability

There is a growing demand for places that provide stress relief and education on holistic and sustainable living. This project will investigate and outline a plan to develop a new business where people can go for resources and education focused on personal sustainability. The objective of the proposed Wellness Farm will be to empower visitors to gain an understanding of self-sustainability and to help them integrate healing practices into their daily lives. It is to be a place where people from all walks of life may learn about farming, homesteading, health and wellness. Some techniques offered will include; horticulture and farming lessons, medicinal plant classes, yoga and dance, wellness treatments and a variety of wellness lectures. The Wellness Farm will encompass all aspects of sustainability to help people achieve a light carbon footprint. Attaining these skills is a crucial step in creating a truly sustainable world for ourselves and future generations.

549 Auditorium 3:30-4:15 Board 19A
Neev Blume
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Connecting Auxiliary Services With the Amherst Survival Center

The dining commons managed by UMass Auxiliary Services generates a large portion of food waste on the UMass campus. This research project will connect the dining commons with the Amherst Survival Center so that food can be rescued and shared with those who need it, rather than composted or discarded. Food waste is one of America’s most pressing issues and needs to be addressed in light of dwindling resources and rising food prices. Between 40-50% of all produce grown in the U.S. is not consumed. At the same time, 1 in 6 Americans don’t know where their next meal will come from. The Amherst Survival Center for example, has seen a 41% spike in people using their services over the past few years. These two problems present an opportunity because they can solve one another. There is enough food for people to eat, but there isn’t a system to make the food available. This project will investigate the problem and create an opportunity for direct communication and collaboration between dining commons staff and the Amherst Survival Center team, including volunteers. This collaboration has the potential to reduce waste produced by the UMass dining commons while simultaneously helping those who need it most in the local community.

550 Auditorium 2:30-3:15 Board 46A
Rose Boyko
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Enhancing Pollinator Systems for Growers in New England
This project will investigate how to enhance pollinator systems for fruit and vegetable growers in New England. Attracting pollinators to a farm is an ecological way to increase fruit and vegetable production. A perennial garden will be constructed using farming methods which attract and support pollinator species to bring attention to the accessibility and affordability of such systems. A field study will evaluate and record activities and results in a new perennial garden at the University of Massachusetts Student Farm in South Deerfield, MA. Based on this study, an assessment guide will be developed to help farmers create and support enhanced pollinator environments.

551 Auditorium 2:30-3:15 Board 47A
Maximilian Carbone
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Designing a Clean Water Aquaponics System

The objective of this project is to design an aquaponic system that can be adapted to any scale production, produce virtually zero unusable waste and collect rain for water change and system top-off. This will promote the preservation of healthy seas and rivers that currently are over-fished to feed a growing human population. Many people are starting to realize they need to support sustainable fisheries that produce less contaminants and waste products than conventional and open water fisheries. Instead of using wild caught species, this system will be designed to promote the natural breeding or spawning habits of a captive raised specie. This system can be housed indoors or in greenhouses, grows two sources of food (the fish and the vegetables that obtain nutrients from fish waste), yields usable waste, and requires less input to produce high energy products. This revamped design will reduce the numbers of wild caught fish for food, reduce the carbon footprint and pollutant discharge of the fishing industry, and open areas for new business opportunities. These low input, highly efficient systems are designed to produce food products in unconventional spaces and will help people start thinking about where their food comes from.

552 Auditorium 9:00-11:00 Board 47A
Brooke E Dillon
Rebecca Drew
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Compost and Curriculum: Promoting Sustainability and Reducing Waste at GHS

This project is designed to investigate and propose a means to utilize food waste produced by the Greenfield Massachusetts High School cafeteria through collection and composting. By mimicking programs which have been successful in other school districts, this project will help to create a healthy system which produces minimum waste, while encouraging students to become more enthusiastic about personal sustainability. The project will include volunteers, students, faculty, and parents. As the school building is currently being remodeled, a new composting program can be integrated into the cafeteria based on a creative well-researched design. This project will result in less waste going to the landfill and more engaged students in the school.

553 Auditorium 3:30-4:15 Board 14A
Edgar Foudray
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Orchard Ecology: Herbs and Apples

This project will plan a field study to evaluate holistic management strategies for commercial apple orchards. Following a thorough review of the academic literature, a research design will be implemented at the University of Massachusetts Cold Spring Research and Education Center. Strips of weeds sown beneath an apple orchard canopy will be intercropped with medicinal herbs as an alternative to herbicide control of noxious weeds. Two treatments will be randomly assigned in a split-plot design. One treatment will be an application of glyphosate herbicide to bare soil. A second treatment will be the planting of a sixty-species herbaceous plant matrix. Over three growing seasons, population data for herb plants and noxious weeds will be recorded. The expected results will reveal the efficacy of understory management in sown weed strips compared to conventional herbicide management. Cultivating a
polyculture of herbaceous plants in apple orchards may be a more ecologically conscious strategy for managing agricultural weeds in commercial fruit orchards. The adoption of the sown weed strip system would result in decreased chemical use in commercial fruit production operations.

**554 Auditorium 2:30-3:15 Board 44A**
Amber Halkiotis  
John Gerber (Faculty Sponsor)  
Department of Stockbridge School of Agriculture, UMass Amherst  
Homesteading Guide for the Pioneer Valley of Western Massachusetts

Families in the Pioneer Valley of Western Massachusetts might learn to become more self-sufficient if they had guidance on how to get started. This project will produce a guide on how to create an easy homesteading lifestyle, geared toward busy families with children. It is important for the continued health of the planet and our local communities that children learn how to live more sustainably. People need to start feeding and supporting themselves using their own resources in order to reduce consumption of over-processed foods and diminish the harmful effects of industrial agriculture. As easily extractable fossil fuel becomes less available, future generations must learn how to become more food and energy self-sufficient. This guide will include homesteading practices such as; gardening, livestock management and care, food preservation, and composting. It will be created using existing sources including books, articles, and websites. It will also contain information from interviews with local households explaining the challenges they have faced while learning to homestead in the Pioneer Valley. Active engagement in homesteading may be a key to building stronger communities and healthy lifestyles in the region.

**555 Auditorium 3:30-4:15 Board 15A**
Liz LaBrocca  
John Gerber (Faculty Sponsor)  
Department of Stockbridge School of Agriculture, UMass Amherst  
Sustaining UMass GardenShare: A Cooperative Business Model

GardenShare is a one-credit, student-facilitated course at UMass Amherst that introduces participants to gardening and homesteading basics. The group’s one-acre garden on campus allows students to grow a variety of fruits and vegetables while practicing the skills they learn in class. GardenShare also provides students with a meaningful social experience that teaches consensus-based decision-making skills in a positive, welcoming environment. What is lacking from GardenShare is a sustainable foundation for maintaining the space over the summer – a period of time when the garden is most productive and students are the least available. A sustainable business model will help current GardenShare facilitators develop avenues of profit so that students can be compensated for their work, thereby making it more feasible for them to remain involved over the summer. This project will create a business plan for a revenue-generating summer day camp and workshop series for community-members. It will also provide suggestions about avenues GardenShare can use to sell produce and secondary products both during the summer and the academic year.

**556 Auditorium 2:30-3:15 Board 45A**
Astrid O’Connor  
John Gerber (Faculty Sponsor)  
Department of Stockbridge School of Agriculture, UMass Amherst  
Developing Season Extension Strategies for the UMass Student Farming Enterprise

The UMass Student Farming Enterprise class offers training to aspiring farmers while providing the campus community with fresh, organically grown vegetables. Currently, the students harvest and sell produce only during the fall semester. This project will install the necessary infrastructure, experiment with winter growing, and make suggestions for how to extend the harvest season into the winter and spring. A winter growing experiment looking at planting dates for four different varieties of greens in an unheated hoop house will provide useful data. This project will analyze the experimental data along with other models for season extension in the Northeast and make suggestions and plans for the Student Farm’s next season. Not only will the student farmers gain additional practical farming skills, but on-campus wholesale customers will have a fresh, sustainable source of vegetables through the winter. Expanding the UMass Student Farm growing season will not only benefit the students, but the campus at large.
Weed ‘em and reap: how to identify, harvest, and cook foraged food in the Northeastern US

The Northeast woodlands could be grocery stores just waiting to be shopped at, however not many people have a shopping list. Today most people believe that the supermarket feeds us and do not recognize that our food all comes from the Earth. Foraging and eating directly from nature is an example of the original source of nourishment. Wild food is healthy. Studies have shown that wild species have more vitamins and minerals than their closest cultivated relatives. Wild food is also free. This is an important consideration, especially for low income families. However, before people can successfully use food from the woods they must learn what is edible and how to prepare it properly. The goal of this project is to create a web-based resource to teach beginners how to identify, harvest and cook the wide variety of underutilized plants and fungi that grow in the Northeastern U.S. The website will be a simple, accessible resource for anyone to use with information collected from credible sources. With this knowledge, people will be motivated to eat from the untapped resource that is our Northeast wilderness.

Managed Intensive Grazing and Winter Forage Reserves in Western Massachusetts

The purpose of this project is to develop an effective Managed Intensive Grazing (MIG) and Winter Forage Reserve (WFR) system template for farms raising beef or dairy cattle in Western Massachusetts. Cattle production is highly adaptable to Western Massachusetts, especially on those farms situated upon soils not well suited for vegetable or fruit production. Many Western Massachusetts dairy farms have closed in recent years and young farmers are looking to take these operations in new directions. MIG/WFR systems allow farmers to be highly efficient and profitable. By managing the daily grazing of cattle using portable electric fencing, farmers are able to reduce overgrazing of their fields while at the same time ensuring that areas normally overlooked by cattle are fully utilized. Such a reduction in overgrazing and efficient use of land allows farmers to stock many times more cattle onto a given farm without sacrificing animal welfare or farm ecology. Development of a WFR allows farms to forego much of the expensive forage equipment previously deemed necessary to run a dairy or beef operation. Cattle are able to exhibit their natural instincts, grazing nearly year round on pasture while reducing the overall operational costs to the farm. In comparison to standard range grazing or feedlot systems MIG/WFR systems offer New England farmers an opportunity to develop an ecologically sustainable and economically profitable business model.

Equine Pasture Rotation and Forage Management

Equine pasture rotation and forage management is a project that combines traditional equine management with the economic and ecological benefits of sustainable practices. Poor equine nutrition and nutrition management have resulted from the industrialization and increased processing of feed. While supplemental nutrition is important for working horses, proper forage is essential to maintaining good digestive health and the overall well-being of the animal. Through the practice of rotational grazing, this project aims to devise a system that works specifically for an equine facility to improve pasture management and allow for the maximization of pasture growth and health. With this, an equine facility would be able to reduce the cost of imported hay and bulk grain while improving the overall health of the horse by allowing it to process food that its body is designed to digest. Research will consist of scholarly articles and journals relating to rotational grazing and forage management as well as specific dietary needs of the horse. This project will assist a modern equine facility with little to no prior knowledge on the subject matter transition toward a more sustainable business.
560 Auditorium 3:30-4:15 Board 18A
Natan Theise
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
Garden Helper: An Online Resource for Designing a Garden for Everyone’s Needs

The proposed garden guide website will result in more gardens in more places by making the knowledge of how to grow gardens easily accessible online. There are simply not enough people growing their own food and that needs to change. There needs to be more self-sufficiency when it comes to people and food, meaning more gardens. Either people think gardens are too time consuming or they don’t know how to get started. This project will result in a web-based guide to help show people how they can create a garden to fit their own needs. The website will feature an extensive database of plants, as well as present relevant characteristics of each plant. The site can be searched using keywords, correlating to plant needs and yields. A suitable plant for every garden space can be found by typing in the characteristics of the plant (such as edible, medicinal, tree, or vine) against the environment it needs or tolerates (such as acidic or moist soil). This will lead to an increased knowledge of plants (especially those frequently used in permaculture gardens), more gardens and increased self-sufficiency. This website intends to empower and educate people on how to grow their own food by creating a garden that suits their needs.

561 Auditorium 2:30-3:15 Board 48A
Charlotte Wilson
John Gerber (Faculty Sponsor)
Department of Stockbridge School of Agriculture, UMass Amherst
School Gardens and their Effects on Academic Performance of Children

This project will investigate the relationship between the presence of gardens in schools and student improvement in behavior, grades and nutrition. The youth of today are spending increasing amounts of time indoors, whether due to leisure activities or simply too much homework, and could benefit from interacting more with nature. There is much to be gained from integrating a gardening project into a school curriculum, including the promotion of better eating habits and a broader knowledge of the current food system. Using published studies, scientific journals and other academic references, this project will evaluate differences between schools that have gardens and those that do not. Criteria will include consumption of healthier food and changes in student behavior and academic performance. Considering the many problems society faces relating to the industrial food system and public health, children who use these gardens as a learning tool will have increased awareness surrounding food issues, and hopefully make better and more informed decisions for the future.

WOMEN’S STUDIES

562 Concourse 11:35-12:20 Board 69C
Jessica Brown
Regina Yaroch (Faculty Sponsor)
Department of Communication, Cape Cod Community College
Intimacy After Abuse

This research will explore the rape survivor’s journey and identify how women move into meaningful relationships after they have been raped. The differences and similarities of being raped by an intimate partner or marital rape versus non-romantic partner rape will be discussed. The side effects—emotional and physical—that sexual abuse has on its survivors and how abuse changes their sense of self varies. Other factors that provide for resilience, such as the ability to bounce-back and one’s support network of family and friend, will be explored, along with if the survivor uses a support group. Moreover, the types of vocabulary used by victims / survivors and the vocabulary used about them from the community they reside in are important aspects of her recovery and the ability to heal. The therapies used to assist the healing process and the environmental and personal factors that affect the success of these therapies will be explored.
Women’s roles in Gambia have traditionally been limited to domestic pursuits. However, in the last 20 years there have been positive changes that enable women to pursue better education and work opportunities. Although, the changes in women’s roles are beneficial to the country, these changes continue to face cultural obstacles. Using interviews, primary source documents, and secondary research, this project will show: 1) how women’s roles have changed in the Gambia over the past 20 years; 2) the continued obstacles to women’s progress, and 3) how women’s expanded roles have been an engine of economic progress. The project then presents methods to educate and overcome many of the obstacles faced by the women of the Gambia. Lastly, the study proposes a specific educational plan that could be introduced to Gambian public schools, which could help bring these problems and methods of solving it to light.

Women have not been treated on an equal socio-economic level even when lawmakers seek to establish wages that would allow for survivable standards of living. This was due largely to the types of careers open to them; domestic service, unskilled factory hands, etc. The focus of this research paper will be to examine economic suppression of working-class woman with the implementation of minimum wage which prevented them from obtaining a job or career that would enable them to support their family. Although this project will be primarily about women in the working-class, other groups who were affected will be examined as well. Research sources will include Nickel and Dimed (Ehrenreich, 2001), “Neither Mother nor Breadwinners” from Feminist Economics (Mutari, et al., 1912-38).
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