[ACF 2011 October](#_Toc456271645) - December Presentations

***[Agius, Mike 1](#_Toc447116776)***

[***Arusoo, Tom 1***](#_Toc447116777)

[***Belprez, Whitney 2***](#_Toc447116778)

[***Blanchard, Andrea 2***](#_Toc447116779)

[***Buzzell, James 4***](#_Toc447116780)

[***Comeau, Ryan 4***](#_Toc447116781)

[***Crosby, Andrew 5***](#_Toc447116782)

[***Dalman, Erica 5***](#_Toc447116783)

[***Destrades Mendoza, Olivia 7***](#_Toc447116784)

[***Eben, Mariel 7***](#_Toc447116785)

[***Greene, Erik 8***](#_Toc447116786)

[***Hansen, Nathaniel 9***](#_Toc447116787)

[***Hekstra, Katie 10***](#_Toc447116788)

[***Koeman, Elizabeth 11***](#_Toc447116789)

[***Koster, Andrea 11***](#_Toc447116790)

[***Larsen, Angela 12***](#_Toc447116791)

[***LeBar, Dana 13***](#_Toc447116792)

[***McGee, Colin 14***](#_Toc447116793)

[***Miller, Diane 15***](#_Toc447116794)

[***Nadvar, Negin 16***](#_Toc447116795)

[***Norris, Rebecca 17***](#_Toc447116796)

[***Schenk, Samantha 18***](#_Toc447116797)

[***Siemer, Kyle 19***](#_Toc447116798)

[***Walters, Kent 20***](#_Toc447116799)

[***Whitmer, Jonathan 21***](#_Toc447116800)

[***Wilson, Michael 22***](#_Toc447116801)

[***Yonkman, Jenny 22***](#_Toc447116802)

**ACF 2011 October – December Presentations**

**Agius, Mike**

October – December FY11

Joint SERM/SWRM Regional Meeting

"Synthesis of novel cyclic heterocyclic compounds to interact with higher-order DNA"

Nate Strong, Mike Agius\*, Matt Schaenherr\*, Colin McGee\*, Tom Arusoo\*, Mary Karpen and Toni Rice

Higher-order DNA conformations can form within regions of DNA that are rich in guanines. Telomeric DNA is located at the end of human chromosomes, is guanine-rich and can fold into tetraplex DNA. Compounds that should interact and stabilize telomeric DNA are being developed. Increased binding affinity and selectively over duplex DNA is a long-term goal of this work. The convergent synthesis of novel, cyclic, heterocyclic compounds will be described. The intermediate monomeric units were synthesized using a building block approach involving acid chloride-amine coupling reactions. The final cyclization reaction was achieved via the use of peptide coupling reagents in combination with the cation template effect. Quantum mechanical calculations were used to help select the appropriate template ions for use in the synthesis. As tetraplex interactive ligands are typically planar, these calculations were also used to compare the shape of the new compounds to two previously published compounds. The results of this study will be described in this presentation.

**Arusoo, Tom**

October – December FY11

Joint SERM/SWRM Regional Meeting

"Synthesis of novel cyclic heterocyclic compounds to interact with higher-order DNA"

Nate Strong, Mike Agius\*, Matt Schaenherr\*, Colin McGee\*, Tom Arusoo\*, Mary Karpen and Toni Rice

Chemistry Department, Grand Valley State University, Allendale, MI 49401.

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**Belprez, Whitney**

October – December FY11

Society for the Scientific Study of Religion 2010 Annual Meeting

"Religious Illiteracy"

The United States is increasingly becoming a global crossroads of religious traditions that impact the culture, politics, and education of its citizens. As religious scholar Stephen Prothero states, this creates "a major civic problem," in America, which is one of the most religious nations in the world, yet is shockingly illiterate about the world's religions. My intention in this paper is to explore the growing problem of religious illiteracy, and argue that religion should be taught in public high schools and universities in the discipline of Religious Studies. I also explain the foundational interdisciplinary approach used in Religious Studies, and why this is the best way to teach religion to secular students. Recent scholarly research as well as current issues and discussions regarding religion inform my argument.

**Blanchard, Andrea**

October – December FY11

Michigan Teachers of English to Speakers of Other Languages (MITESOL): ESL at the Crossroads

"Refugees Near and Far: What they Need vs. What they Receive"

Refugees come to America to reestablish their lives. A necessity for their full emersion and incorporation into American society is English acquisition. Refugee resettlement agencies address this need but oftentimes their services expire after three to six months. The end of these introductory programs can not guarantee the refugees’ full comprehension of the English language, so more must be done.

English language learners often face the English speaking world before they master the language. Adult learners rarely encounter another similar ESL service that reinforces their English acquisition. What they learn in the first six months of their ESL program must provide them with the fundamentals of English that they will need to prosper in the United States. Issues such as these, and the unequal gender distribution within refugee resettlement ESL programs, will be discussed in the presentation, though the emphasis will be on K-12 learners.

K-12 refugee students, too, suffer from inadequate English preparation, and it hinders their opportunities for educational advancement. K-12 teachers need to be aware of the specific needs of refugee students, and they must know how to best address those needs. This presentation primarily explores and attempts to resolve this issue. The investigation of what programming is available both in Michigan and elsewhere for these specific ESL students helps determine what more can be done.

From a first hand experience with the Refugee Resettlement and Immigration Services of Atlanta, and from interviews with representatives from Bethany Christian Services, information is gathered about ESL programs for all ages currently in place for refugees. Their effectiveness is determined and scrutinized. The examination of these programs is the basis for conclusions drawn about an ideal ESL program for refugee students which will be supplied and openly discussed to conclude the presentation.

Dr. Christen Pearson and student Andrea Blanchard

**Buzzell, James**

October – December FY11

Geological Society of America Annual Meeting & Exposition 2010: Reaching New Peaks in the Geosciences

"GIS Analysis of Potential Coastal Changes Resulting from Tropical and Extra Tropical Storms near Part Au Prince, Haiti"

This research project focuses on mapping and modeling the impact of tropical storms systems off of the coast of Port au Prince, Haiti. Port au Prince is a densely developed city that is relatively low in elevation (elevation ranges from 0 to 100 meters within the study area), and located near the apex of a highly embayed coastline of southwest Haiti. A study was conducted to explore potential impacts on this low lying region following the onset of a rapid rise in sea level due to storm surge associated with tropical and extra tropical cyclones. GIS-based analyses were conducted to evaluate areas potentially inundated by water and short-term changes in shoreline morphology. Data used for the analysis includes Light Detection and Ranging (LiDAR) data, as well as, aerial photos taken between January 17th and January 25th, 2010, in response to earthquakes in Haiti. Results were assembled into a GIS database that includes predictions of land area lost, number of buildings inundated, and percent of population affected, allowing local inhabitants and relief workers to rebuild in a manner compatible with average and extreme tropical weather systems.

**Comeau, Ryan**

October – December FY11

Southern Illinois University Edwardsville Undergraduate Philosophy Conference

"A Discourse on the Phenomenology of Sensory Experience and Dogmatism"

Epistemology is the study of knowledge, but in this field of study there are many ongoing debates. For the purposes of this paper, I am interested in the debates that explore structures of justification rather than theories of knowledge. I intend to look at two of these debates that affect justification – the “Sellars problem” and skepticism, although the objective of this paper is not necessarily to solve the problems that each of these debates raises for theories of knowledge or justification, especially the latter. My goals are threefold: first, I will explain internalist foundationalism and show how the Sellars problem arises for such an account of justification. Second, I will show how Laurence Bonjour’s account of internalist foundationalism, more specifically his account of the justification of sensory beliefs, seems to solve the Sellars problem. Finally, I will attempt to show how Bonjour’s phenomenological account of sensory experience is more appealing than dogmatist solutions to skepticism.

**Crosby, Andrew**

October – December FY11

Association for Budgeting & Financial Management Annual National Conference

"First Aid for Michigan Municipalities: Band-aids or Tourniquets"

How do local governments react to fiscal instability? Do they make dramatic reductions and tax rate increases? Or do they maintain current expenditures through increased short and long-term borrowing? Using the annual reports collected and posted by the Michigan Department of Treasury we plan to evaluate revenue, expenditure, and borrowing patterns over the past six years (2004-2009) for Michigan municipalities to answer these questions.

**Dalman, Erica**

October – December FY11

Geological Society of America Annual Meeting & Exposition 2010: Reaching New Peaks in the Geosciences

"Using a Rock Tumbler in Sedimentology Courses to Simulate Weathering and Erosional Processes"

Educators have suggested using rock tumblers in introductory geology classes at the college level and in K-12 earth science courses to simulate weathering and erosion of pebbles or cobbles, but we suggest experiments using a tumbler are also useful in sedimentology courses for geology majors. Experiments can be used to demonstrate loss of mass as a function of rock type or degree of lithification as well as to determine effects on grain sphericity and roundness. Tests can be run for several days or weeks with periodic pauses for measurements. Groups of students may develop their own tests, or can be given a general area to study (e.g., grain shape) and then be required to plan the test (e.g., rock types, initial sizes and shapes). In addition to writing lab reports, the groups can give presentations in class. By doing the tests and presentations early in the semester, the instructor can refer back to the results when presenting a variety of topics including intra- versus extraformational origin of clasts, grain shape as a function of distance of transport, and the biased preservation of rock types in clastic rocks.

We found that loss of mass and increase in roundness are predictable when the rocks being compared vary significantly in composition and texture (e.g., granite versus limestone); however, significant variation is observed when comparing different sandstones and limestones due to variation in the degree of lithification. Differences in weight loss between duplicate samples can range from almost zero to several percent depending on the homogeneity of the sample. Using carborundum (SiC) rather than quartz sand for grit accelerates the tests. However, preliminary results indicate the amount of mass lost using the two grits may not be consistent for various rock types perhaps causing difficulty when equating distance of transport in the tumbler to a natural environment in which quartz sand dominates.

Advantages to using a tumbler in a sedimentology course are many: (1) the equipment is inexpensive and simple to operate; (2) the concept is easy to explain and takes little class time, (3) the tests are ideal for group work with each student charged with certain runs; (4) the results are commonly easily plotted and presented in class, and (5) the results can be used throughout the semester to help demonstrate sedimentological concepts.

**Destrades Mendoza, Olivia**

October – December FY11

Michigan Teachers of English to Speakers of Other Languages (MITESOL): ESL at the Crossroads

"Where Paradigms Intersect: Toward a Unified Theory of SLA"

Research in Second Language Acquisition (SLA) is constantly expanding and evolving, and many theories, hypotheses and models have developed from the three central paradigms: Behaviorism, Innativism and Cognition. However, to date, researchers have been unable to arrive at a single, all-encompassing theory of SLA. While the main theoretical perspectives are often - though not absolutely - considered to be at odds with one another, many of the most compelling ideas that stem from them are, in fact, related and not mutually exclusive. Innativist offerings, such as Chomsky’s Universal Grammar (UG), combined with elements of Krashen’s Monitor Model, will be tied to emergentist and cognitive perspectives, including work by Ellis and Larsen-Freeman and recent data regarding Dynamic Systems Theory, resulting in the proposal of a new unified theory of SLA. Finally, implications and practical applications for ESL classrooms will be addressed.

**Eben, Mariel**

October – December FY11

North American Case Research Association (NACRA) 2010 Annual Meeting

"Georgie's Consignment Shop: Inventory and CRM Practices"

Georgie’s Consignment Clothing opened in 1981, when resale shops were just beginning to appear around the country. Located in a historic Post House, Georgie’s attracts shoppers and consigners from across West Michigan. Readers of both “On the Town” and “Grand Rapids” magazines have recognized Georgie’s as the best consignment shop in the area. Consignment merchandise is held for sale for two months and priced at one-third of the retail price, or one-half of the retail price if the items have original sales tags. In 2009, Georgie’s had revenues of $700k and paid out one-half of revenues to consigners.

Within the consignment industry, there is a splurge of competitive growth across the nation. Women’s suits are no longer in vogue, thus reducing the traditional high price-points retailers have historically exploited. To catalyze growth, Georgie's needs to increase its consignment inventory and capitalize on its excellent customer service. Traditional methods, such as advertising coupons, have proven ineffective. The current inventory system is completely manual and centers around an organization of color-coded index cards and tags. The case seeks to analyze whether the implementation of technology, namely an inventory management system and customer relationship management, will be a helpful and profitable investment for Georgie's Consignment Shop. The case shows how inventory and customer retention processes can prove to be either outdated or competitive advantages. For example, is color coding the inventory and manually sorting clothes based on the date they were received still effective? Is it enough of a competitive advantage to personally know your customers?

The subsequent Instructor's Manual addresses suggested teaching approaches, student discussion questions and answers, an instructor's chalkboard diagram, a process flowchart, and a TOWS analysis (similar to a SWOT analysis).

**Greene, Erik**

October – December FY11

Intellectbase International Consortium Academic Conference

"Applied Entrepreneurialism in a Communication Program: A Case Study in Green Internships"

In this article, the authors assess the use of a green startup business in providing internships for a communications program at a regional Midwestern university. Their experience in the use of an entrepreneurial startup internship as part of the requirement for an integrated advertising/public relations major program revealed five faculty/student assessment outcomes in this undergraduate setting: institutional commitment to entrepreneurship and sustainability, establishing the pedagogical legitimacy of entrepreneurial learning, faculty involvement, faculty motivation, student selection of assignments and evaluation. Their results indicate that entrepreneurship assignments provide a unique opportunity for education in a communications program while helping to promote the University’s goals of relevant sustainable practices. With this article, the authors try to explain the anticipated outcomes using the experience in placing interns as part of the requirement for an integrated advertising/public relations program. Being an individual case, communication instructors are directed to use the information considering the limitations of this qualitative study. For this paper, applied entrepreneurialism is defined as independent study experience where students engaged in sustainability activities via a course experience for credit that includes both elements of entrepreneurship, a focused application of communications skills and an increased regard for the relationship between economy and environment.

**Hansen, Nathaniel**

October – December FY11

Geological Society of America Annual Meeting & Exposition 2010: Reaching New Peaks in the Geosciences

"The geomorphic and environmental settings of known archaeological sites in the Lower Grand river Valley, Ottawa County, Michigan"

To predict undiscovered archaeological sites in the Lower Grand River, we mapped known archaeological sites using color and infrared aerial photos, digital raster graphics, and digital elevation models. We interpreted the geomorphic and environmental settings of sites using this preliminary geographic information system. We found both spatial and temporal patterns in site location.

The Lower Grand River valley is cut into Quaternary glacial sediments that formed during the retreat of the Laurentide ice sheet ~16,000 to 13,000 14C years before present (B.P.). Initially the glacial Grand River was graded to Glacial Lake Chicago. Next, the Grand River incised due to the Chippewa low stand ~9,000 14C B.P. The first inhabitants were the Paleo-Indian culture which occupied the valley ~11,000 14C B.P. By 10,000 14C B.P. the climate of the region supported deciduous forests. This corresponds with the start of the Archaic period, which ended ~2,500 14C B.P. Between ~6,000 and 5,000 14C B.P. a transgression inundated much of the Lower Grand River Valley during the Nipissing high stand. By ~4,000 14C B.P. Lake Michigan had reached its current level resulting in down cutting of the Grand River. The evidence for this is a stream terrace at elevations between 590 and 610 feet a.m.s. For the last 4,000 years the base level of the river has stayed relatively the same, and lake levels have fluctuated by about two meters. The following Woodland (~3,000 to 400 B.P.) and Historic periods had a climate similar as present, with much less variation than during deglaciation.

The frequency of sites decreases from higher elevations to lower elevations. Younger sites are more common than older sites. Paleo-Indian sites occupy uplands near the Grand River and stream terraces. Archaic sites exist on the uplands near the river, and deglacial to middle Holocene stream terraces. Woodland sites are found on all pre-settlement surfaces. Historic sites exist on uplands and the modern flood plain. The high number of sites located on the uplands suggests that they should be the focus of future archaeological investigation. Most of the sites are associated with resource gathering and camps, while larger more permanent settlements were located on alluvial surfaces within the valley. The type of geomorphic surfaces should be considered in future studies.

Nathaniel Hansen , Patrick Colgan

**Hekstra, Katie**

October – December FY11

2nd Annual Michigan Green Chemistry Conference

"The use of United States Consortia Microbes in an Anaerobic Fuel Cell for the Productions of Energy from Municipal Waste Water"

No Abstract.

**Koeman, Elizabeth**

October – December FY11

Geological Society of America Annual Meeting & Exposition 2010: Reaching New Peaks in the Geosciences

"The Impact of Land-Use Changes on Carbon Storage in Small Streams, Ottawa County, Michigan"

By burning fossil fuels and disturbing soils through land use changes such as forestry and agriculture, humans affect the carbon cycle by altering the amount that goes into Earth’s atmosphere and the amount stored in sediments. We looked at carbon storage in pre- and post-settlement alluvium in two small tributaries of the Grand River near Allendale, Michigan. Approximately 300 samples from 18 alluvial sections, and 10 vibracores were described and analyzed for texture, moisture content, loss on ignition, and carbonate content. In both sections and cores, a coarse layer interpreted to be stream gravel indicates an unconformity between upper and lower sediment sequences. Two radiocarbon analyses suggest that the lower sediment sequence is as old as mid Holocene in age. Burial of in situ tree stumps and trash indicates that the upper sequence is younger than settlement (~1820 A.D.). Our preliminary analysis indicates that pre-settlement alluvium has a mean organic content of 5.0 ± 4% (one standard deviation), while the mean organic content of post-settlement alluvium has a percentage of 4.1 ± 2%. The difference in variation between the upper and lower sediments could suggest a different set of processes in organic storage. Our current interpretation of these sediments suggests that the lower sequence is lacustrine or slack water sediments and the upper sequence is alluvial overbank sediment. The radiocarbon ages suggest that the lower sediment sequence formed during the Nipissing high stand when the Grand River and many of its tributaries were flooded. This interpretation could explain the difference in variation between organic carbon content. Work in progress includes dating the upper sequence using Cesium 137 to determine rates of carbon storage.

**Koster, Andrea**

October – December FY11

Midwest Fish and Wildlife Conference

"Diet of Round Gobies in coastal areas of Lake Michigan"

The round goby (Neogobius melanostomus) is a species native to the Ponto-Caspian region of Eurasia that was introduced to the Great Lakes in the early 1990’s and has since undergone rapid expansion. The round goby is known to consume a variety of prey items from soft-bodied invertebrates to hard-bodied prey such as dreissenid mussels, primarily based on the round goby’s habitat use and body size. We hypothesized that round goby: (1) abundance is greater at pierheads than adjacent drowned river mouth (DRM) lakes (which have direct connections to Lake Michigan) because of differences in substrate between the two habitats, and (2) diets at pierheads are primarily comprised of dreissenid mussels based on the size of round gobies and density of dreissenids in the two habitats. To test these hypotheses, we sampled round gobies with baited minnow traps at six sites (consisting of pierhead and adjacent DRM-lake habitats). As predicted, we found significantly higher densities at pierheads compared to the DRM lake habitats. Stomach content analysis was conducted on each sampled specimen by separating the prey types into major taxonomic groups and assessing differences in prey consumption as a function of total prey volume. The results from this study will allow a more thorough understanding of round goby population distribution and habitat use in coastal areas of Lake Michigan.

**Larsen, Angela**

October – December FY11

The Wildlife Society Annual Conference

"Effects of forest thinning on predator-prey relationship between white-footed mice and gypsy moth pupae in west central Michigan"

White-footed mice (Peromyscus leucopus) are a main predator of gypsy moth (Lymantria dispar) late-stage larvae and pupae. This study will investigate whether these predation rates are different between areas subjected to different forest thinning methods and whether there are other small mammal species contributing to these predation rates. Two sites undergoing forest thinning for oak savanna restoration in the Manistee National Forest in Lower Michigan will be monitored and compared. One site, Pines Point, was thinned with downed wood piled while the other site, Hayes Road, was thinned with downed wood left where it fell. There are five experimental replicates at each site that consist of four 2 acre plots; 3 treated with separate mechanical tree thinning techniques (masticator, bulldozer, shearcutter), and a control plot. Small mammal trapping and gypsy moth egg mass counts will be conducted to estimate abundance and density of both of these populations. Predation rates on gypsy moth pupae will be measured by monitoring live pupae placed in the field. Track plates and teeth marks will be used to identify the mammalian predators involved. Predation rates are expected to be different between sites, but not between thinning techniques. The results will aid forest managers in choosing thinning methods when keeping gypsy moth populations at low densities is a priority.

**LeBar, Dana**

October – December FY11

American College of Sports Medicine Annual Meeting (Midwest Chapter)

"Hydration strategies and change in body mass during pre-season two-a-days in female college soccer players"

Introduction: Fluid loss and dehydration can negatively impact physical performance, skill execution, and at severe levels cause physical harm. Sports camps held during summer months are associated with significant body mass and fluid loss through sweating, which therefore places increased emphasis on maintaining adequate hydration. Purpose: To monitor hydration strategies and changes in body mass as a result of pre-season two-a-days in college soccer players. Methods: 16 female DII soccer players (19 ± 1 yrs; 1.68 ± 0.03 m; 64.8 ± 7.5 kg) were monitored during a morning and subsequent afternoon training session. The previous night participants ingested a telemetry sensor for recording of core body temperature (Tint). Prior to each session, body mass (BM) and dry uniform weight were determined, Tint was measured, and the environmental conditions were taken. Participants were free to drink water and a commercially available 6% carbohydrate sports drink ad libitum. During each break between drills, Tint, heart rate (HR), and environmental conditions were recorded. At the end of each session, Tint, HR, BM, wet uniform weight and volume of both water and sports drink consumed were determined. Statistical analyses were performed on select within and between-session variables using paired t-tests. Results: There were no differences in both Tint and HR between sessions. More total fluid was consumed in the morning compared to the afternoon (1.11 ± 0.39 L vs. 0.81 ± 0.35 L; p<0.05), but there were no differences in type of fluid consumed, either between or within sessions. Net BM loss was greater in the morning compared to the afternoon (1.7 ± 0.4 kg vs. 1.4 ± 0.2 kg, p<0.05), which equated to 2.7 ± 0.6% and 2.2 ± 0.4% net BM loss, respectively. Overall, there was a net BM loss of 2.8 ± 0.5 kg (4.4 ± 0.7%) across the whole day. Conclusion: The hydration strategies used failed to offset marked session-specific and daily body mass losses encountered during soccer pre-season two-a-days performed in a moderate heat stress environment. Further research is needed to elucidate the impact on acute hydration status and of consecutive two-a-days on chronic hydration status in college soccer players.

Matthew T. Wittbrodt1, Dana K. Lebar2, & Ross A. Sherman2

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**McGee, Colin**

October – December FY11

Joint SERM/SWRM Regional Meeting

"Synthesis of novel cyclic heterocyclic compounds to interact with higher-order DNA"

Nate Strong, Mike Agius\*, Matt Schaenherr\*, Colin McGee\*, Tom Arusoo\*, Mary Karpen and Toni Rice

Chemistry Department, Grand Valley State University, Allendale, MI 49401.

Higher-order DNA conformations can form within regions of DNA that are rich in guanines. Telomeric DNA is located at the end of human chromosomes, is guanine-rich and can fold into tetraplex DNA. Compounds that should interact and stabilize telomeric DNA are being developed. Increased binding affinity and selectively over duplex DNA is a long-term goal of this work. The convergent synthesis of novel, cyclic, heterocyclic compounds will be described. The intermediate monomeric units were synthesized using a building block approach involving acid chloride-amine coupling reactions. The final cyclization reaction was achieved via the use of peptide coupling reagents in combination with the cation template effect. Quantum mechanical calculations were used to help select the appropriate template ions for use in the synthesis. As tetraplex interactive ligands are typically planar, these calculations were also used to compare the shape of the new compounds to two previously published compounds. The results of this study will be described in this presentation.

**Miller, Diane**

October – December FY11

International Conference on Civic Education

"Using Spatial Technologies to Build Sustainable Garden Networks in Muskegon MI: a University and Community Collaboration"

According to the American Community Gardening Association, community gardens are important for improving the quality of life for people in all walks of life through recreation, exercise, therapy, education, and the production of nutritious foods. Community gardens also beautify neighborhoods, increase green space, create income opportunities, and stimulate intergenerational and cross-cultural relationships. The purpose of this study was to investigate the different structures and processes within Muskegon County community gardens, and provide a communication mechanism to share best sustainable practices. GPS-enhanced digital cameras and other Global Positioning Systems (GPS) technology were used to identify and map the locations of community gardens. Geographic Information Systems (GIS) technology was used to, store, analyze, organize and display the data as dynamic thematic maps. A survey was conducted to investigate the structure of each garden. These datasets proved valuable for planning future community garden activities in the Muskegon community, and helped improve gardeners understanding of the community garden network infrastructure. Building a network of community gardens enhanced existing networks, and created new ones. Integrating spatial and web technologies connected the current Muskegon community gardens and gardeners by introducing visual components to aid in collaborative problem-solving of a variety of garden and food issues. Shared public information was efficiently disseminated via a newly built website that encouraged the use of free internet communication software (Google talk, Picasa, Skype, Facebook, Twitter, and Google mail) to provide information on soil, water management, plant selection, pest management, etc. Encouraging collaboration and communication among gardeners using GPS, GIS and ICT through a web interface provided a unique virtual space for people with similar interest’s to improve the physical, social, cultural and economic health of each neighborhood.

**Nadvar, Negin**

October – December FY11

Biomedical Engineering Society (BMES) Annual Meeting 2010

"A Novel Technique for Frequency Domain Analysis of Heart Rate Variability"

Conventional frequency domain analysis of heart rate variability (HRV) in vivo uses tachograms computed as interbeat interval vs. beat number. Inferences drawn from this analysis are flawed since it ignores the effects of non-uniform sampling. We compared the conventional technique (interbeat interval vs. beat number, CT) to a novel technique (interbeat interval vs. time of occurrence of beat, NT) for the frequency domain analysis of HRV. Guinea pig hearts (n=6) were perfused at a constant pressure of 55 mmHg with Kreb’s-Ringers (KR, 37oC) solution. After 30 min baseline (BL) stabilization, hearts were subjected to 30 min global ischemia and 120 min reperfusion (REP). Bipolar electrograms were recorded from the right ventricle for 4 min each at BL, and after 0 min (REP00), 60 min (REP60), and 120 min (REP120) of REP. Tachograms were computed using CT and NT. For CT the estimated sampling frequency (fs) = 1 Hz and for NT tachograms were interpolated to fs = 40 Hz. We computed: a) total power (TP, 0.04-0.4 Hz for CT and 0.12-16 Hz for NT), b) ratio of power in low frequency (0.04-0.15 Hz for CT and 1.6 to 6 Hz for NT) to high frequency (0.15-0.4 for CT and 6 to 16 Hz for NT) (LF/HF). Results showed: i) during REP00, TP increased more with NT than CT, ii) LF/HF showed no change after REP with CT. Conversely, as noted in vivo, LF/HF decreased after REP with NT. In conclusion, frequency domain analysis of HRV using NT, and not CT, were comparable to in vivo results emphasizing the need to correct for errors due to nonuniform sampling when analyzing HRV in the frequency domain.

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**Norris, Rebecca**

October – December FY11

The Wildlife Society Annual Conference

"Predicting habitat quality for Bobcats in Michigan's Souther Lowere Peninsula using non invasive detection methods"

While bobcats (Lynx rufus) historically ranged throughout the entire US, in the past 150 years persecution and habitat loss have created a noted absence of bobcats in the Midwest. In recent years, they have begun to make a comeback in these highly fragmented areas. Little is known about how bobcats use sub optimal habitat in the Upper Great Lakes Region, particularly in Michigan’s Southern Lower Peninsula. This study used non-invasive track station and camera trap data to analyze bobcat habitat use on a regional scale. Track stations were created and camera traps were monitored in three counties in South Central Michigan. Logistic regression was used to create a model for predicting bobcat occurrence based on regional scale land cover factors. This model was then applied within a Geographic Information System (GIS) for the Southern half of Michigan’s Lower Peninsula. Land cover variables that proved to be most important were the proportion of wetlands and proportion of forest present within a home range sized area. Models from other areas in the Midwest will also be applied to Southern Michigan and location data collected from this study will be used to evaluate the suitability of these previously created models for use in habitat delineation in Southern Michigan.

**Schenk, Samantha**

October – December FY11

National Women's Studies Association (NWSA) Annual Conference

"Activist Identity Development Through the Lens of The Vagina Monologues (Individual Paper); From the Stage to the Streets: Feminist Performance ad the Call to Activism (Panel)"

Panel Title: From the Stage to the Streets: Feminist Performance and the Call to Activism

Panel Abstract: One of the central themes of feminism, generally, and Women’s Studies, specifically, is the concept of praxis—the practical application of feminist theory into the world at large. While the classroom provides a myriad of opportunities to engage students and would-be activists in this endeavor, sometimes the most salient experiential learning occurs outside of the classroom. Feminist performance is one such conduit for feminist praxis. This panel will examine the ways that feminist performance engages both performers and audiences in raising awareness about feminist issues. The panel will examine the power of feminist performance as a tool of praxis or activism itself, as it inspires and enables a shift in awareness and consciousness to enact future actions toward positive social change.

Paper Title: Activist Identity Development Through the Lens of the Vagina Monologues

Paper Abstract: Opening the minds of both participants and audience members, The Vagina Monologues has been met with both controversy and life-changing anecdotes. The production provides creative expression while igniting difficult dialogue related to gender inequality for communities and college campuses. However, little research has explored the specific impact of either viewing or participating in the production. We seek to examine the experience from a student development perspective of activist identity. Specifically, what are their values of social change through participation, as well as what is their journey of involvement prior, during, and after production in relation to their activist identity development.

Presenters: Samantha Schenk & Ashley Nickels

**Siemer, Kyle**

October – December FY11

Geological Society of America Annual Meeting & Exposition 2010: Reaching New Peaks in the Geosciences

"Clogging of a Landfill Drainage System in Southern Kent County, Michigan"

The Southern Kent County Landfill is a non-hazardous waste facility with a confined drainage system, which acts as a barrier to migration of landfill leachate into the subsurface environment. Solid municipal waste (MSW) is stored at the landfill, and is located adjacent to a fly-ash pit of incinerated waste. Over time, the drainage system becomes clogged with a precipitate designated as bio-rock. Collaboration between GVSU and Kent County was initiated in order to understand and alleviate the clogging problems.

The first stage of research involved evaluating the chemical and mineralogical composition of the bio-rock. The bio-rock that clogs the pipes is constructed of layers of calcite (CaCO3) separated by algal or fungal mats (with perhaps another mineral or two that washed away during thin sectioning). The calcite formed as equant and plumose crystals: plumose morphology indicates very rapid growth. Analytical techniques used to identify the materials in bio-rock include effervescence in dilute HCl, polarizing microscopes, SEM, XRD, and EPMA.

A set of experiments was designed during the second phase of research to force precipitation of the bio-rock under controlled conditions. The genesis of the bio-rock was the focus. Experiments were guided by field observations: bio-rock forms where leachate from the fly-ash pit and the MSW landfill mix, and where a black organic slime is found. X-Ray diffraction analysis of the seven precipitate samples yielded results consistent with preliminary analysis: calcite, sylvite, and halite crystallized.

During preliminary X-ray diffraction analysis interpretation by hand, it appeared that one of the precipitates was a zeolite. Though this was an incorrect identification, it indirectly redirected the research focus. The landfill and fly-ash pit are by nature rich in Ca and CO2 and the combination of these, calcite, is almost inevitable at the Earth’s surface. Finally, we designed an experimental exchange column in which Ca-rich fly ash leachate passes through a column of Na-rich zeolites in order to induce a reaction, pulling Ca out of solution and thereby hindering the formation of bio-rock. Results are encouraging as leachate samples containing >1000ppm dissolved Ca are reduced to 0 ppm.

**Walters, Kent**

October – December FY11

Geological Society of America Annual Meeting & Exposition 2010: Reaching New Peaks in the Geosciences

"Amounts of Organic Carbon Stored in First and Second Order Streams in Ottawa County, Michigan"

The goal of this study is to determine and compare amounts of stored organic carbon in first and second order alluvial streams in Ottawa County, Michigan. Land use change, fires, logging and agriculture, impact the amount of stored carbon in stream sediments and ultimately in our atmosphere. We hypothesize that stream order could affect carbon storage in small streams. Stored carbon percentages were determined using the loss on ignition method. Over 200 alluvial sediment samples in 18 different locations were analyzed for organic carbon content. Roughly the same amounts of samples were taken from each stream order. All the samples were collected approximately equidistant from one another, beginning at the head of the stream and continuing to the mouth. In first order streams, the mean percent organic carbon is 3.8 ± 2.3 (one standard deviation). In second order streams, the mean percent of organic carbon is 4.3 ± 2.2. While there is little difference in organic carbon content between first and second order streams, a closer examination of the data suggests that second order stream sediment is skewed towards the high end of the range of organic content in the samples we analyzed. One sample site located near the Grand River (a much higher order stream) had some of the highest organic carbon contents measured.

These preliminary data suggest that higher order streams could have a greater capacity to store organic carbon than do lower order streams. In future studies we will examine larger streams in order to further test this hypothesis. Grain size, stream gradient, oxidation reduction processes and many other factors could both explain and complicate the relationship between percent stored organic carbon and stream order.

**Whitmer, Jonathan**

October – December FY11

Midwest Popular Culture Association Annual Conference

"William Blake in 20th Century Popular Music"

William Blake communicated his ideas about the human experience, the supernatural and religion, morality, politics, and the role of the artist through poetry that invoked a rich symbolic mythos that prefigured by almost two centuries the radical artistic innovations of the 20th century. The appropriation of his poetry in 20th century popular music and poetry reflects the affinity between his thinking and postmodernity as manifested in Blake’s rejection of the Enlightenment rationalism, his elevation of imagination, his polemic use of visceral artistic expression, and his rejection of the conventional moralism of established religion.

U2’s landmark album, The Joshua Tree, which the band had originally considered beginning with an adaptation of Blake’s “Introduction to Songs of Experience”, exemplified a thematic approach similar to Blake’s Songs of Experience, with its focus on social and political criticism. Terry Scott Taylor and his band, Daniel Amos, also exhibited significant Blakean influences during the same time period in their use of the Blakean theme of contraries on numerous songs during the same time period. This willingness to critique the status quo—both among conservative political thought and among a reductionist religious subculture—parallels Blake’s own criticism of the Enlightenment project (for its optimistic rationalism) and the established church (for its tendency toward legalism, exploitation, and hypocrisy). Likewise, poets/lyricists as diverse as Bob Dylan, Allen Ginsberg, Van Morrison, The Doors, and Patti Smith, for example, have found inspiration in Blake’s poetry. This paper studies the extensive intertextuality linking Blake’s poetry with popular music and poetry from the 20th century.

**Wilson, Michael**

October – December FY11

The American Society for Cell Biology 50th Annual Meeting

"Construction and use of viral Nato3 overexpression vector in the developing neural tube of Gallus gallus"

No Abstract.

**Yonkman, Jenny**

October – December FY11

National Council of Teachers of English: Teachers and Students Together: Living Literate Lives

"Advocating for Engagement: Teachers and Students Living Literate Lives Online"

This presentation will describe the practical ways that two middle level educators designed novel studies to include online discussions. Online discussions engaged students with the texts in new ways, enhanced student interest and comprehension, and created opportunities for meaningful talk.