SHOWCASE FOR RESEARCH, CREATIVITY, SERVICE AND SCHOLARLY ACTIVITY

CELEBRATION OF TEACHING AND STUDENT ENGAGEMENT

{november 7, 2013}
November 7, 2013

FACULTY SHOWCASE
{1pm to 5pm—morris conference center}

Held in conjunction with the 14th Annual Cornell-Gladstone-Hanlon-Kaufmann Lecture in Environmental Education and Communication

Eleanor J. Sterling, Ph.D.
Director of the Center for Biodiversity and Conservation at the American Museum of Natural History

Conservation from a Biocultural Approach: What, Why, and How
{8pm—hunt union ballroom}

In collaboration with the Missing Links? Animal/Human Contacts and Continuums lecture series, presenting:

Gordon G. Gallup, Jr., Ph.D.
Professor of Psychology, University at Albany

The Minds of Other Species
{noon to 1pm—November 8}
{le café, morris conference center}

Visit the Milne Library (first floor lobby) to view the LOTM IV faculty publication display
{November 4-18}

www.oneonta.edu/academics/lotm/
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Mary Lynn Bensen (Milne Library)


Sallie Han (Anthropology)


Matthew Hendley (History)


Michelle Hendley (Milne Library)


Betty Wambui (Africana & Latino Studies / Women’s & Gender Studies)


MILNE LIBRARY ARCHIVES / SPECIAL COLLECTIONS

Heather Beach, Mary Lynn Bensen, Lyndsie Robinson, Lois Baldwin, Nancy Cannon, Andrea Gerberg (Milne Library professional staff), Ellen Hersey, Sarah Piccorelli (SUNY Oneonta students)

*This presentation includes selections of the archives and special collections maintained by the James M. Milne Library at SUNY Oneonta. Materials can be located through the online catalog and the Special Collections Center link on the Milne Library web site ([http://www.oneonta.edu/library/](http://www.oneonta.edu/library/)).*
This research documents 100 years of land-cover change and hydroseral succession in a 32-hectare riparian city park. New Island and the former Electric Lake are located along the banks of the Susquehanna River, within the city limits of Oneonta in Upstate New York. Its rich natural history weaves a mosaic of both human and ecosystem tenacity. Once the site of extensive forested wetlands, it was briefly interrupted by human settlement, agricultural production, industrial activity, electric power generation, and railroad and interstate development. The Island was created in 1898, when a dam was constructed to impound water behind a powerhouse. The reservoir, called Electric Lake, produced electricity and recreational opportunities, until it was drained in 1958. Railroad tracks bisected New Island, severing hydraulic connectivity with the River, and a switching-yard devastated the forest. Between 1937 and 1960, there was a substantial decrease in agricultural land, and Electric Lake began to desiccate. New Island became mostly scrub shrubs and grasslands. Shrubs progressed to a young forest, and the adjacent land cover was completely urbanized. After falling into disuse by 1970, the Island's railroad property was acquired by the State of New York for the construction of an interstate. Over the next 45 years, the park had few visitors and experienced little interaction with its adjacent urban land uses. Through facilitation and hydroseral succession, New Island has recovered remarkably from past disturbances and is discernable from similar urban riparian lowlands by considerable biological diversity.

An April 2012 trip to Sri Lanka was the basis for the publication of Serendipity, a bilingual book (English-Spanish) with 300 pictures and hundreds of anecdotes and historical facts about the former Ceylon, the island where—according to some traditions—the Earthly Paradise once existed. Sri Lanka is a precious stone floating in the Indian Ocean; it is the madness of nature inventing landscapes, and creatures, and aromas. Sri Lanka is the country with the longest uninterrupted written story, and the oldest tradition in engineering. It is also, one of the most important Buddhist centers of the world. But these things rarely make the news; only the bloodshed seems to exist in the media. This presentation summarizes the content of a publication intended to remediate the distorted image of the island, by showcasing the beauty of the landscape and the warmth of its people.

This presentation focuses on media representations of the Cold War, specifically examining a Japanese animated science fiction television program called in English Mobile Suit Zeta Gundam (1985-1986). Part of the much larger animation franchise Mobile Suit Gundam first airing in 1979, it became such a huge phenomena (like a combination of Star Wars and Star Trek in the U.S.) that new stories have aired, premièred in movie theaters, or been released on home video almost every year since 1985. As noted science-fiction author Ursula LeGuin explains in her 1969 novel Left Hand of Darkness, all good science-fiction works do not look to the future but, instead, provide a window into the present. And, the Gundam franchise, an animated program not just for teenagers, certainly qualifies as world-class science fiction. Previously, in conference presentations, a book chapter, and a journal article, we have shown how 1979’s Mobile Suit Gundam and 2007-2010’s Mobile Suit Gundam 00 (part one of this two-part presentation), while following the main themes of all Gundam series, movies, and home video projects—environmentalism, antiwar messages, pleas for better communication between people, and coming of age stories—also attack the return of right-wing thought to Japan through glorifying the Pacific War era, and criticize both U.S. foreign policy after 9/11 and Japanese isolationism during that same period, respectively. In the case of Mobile Suit Zeta Gundam (Zeta Gundam for short), the creators of this sequel to the original Gundam disparage the actions the U.S. took, and was taking, in the early 1980s to fight the Cold War. In this 50-episode program, airing in 1985-1986, the Federation (the government located on Earth, victorious after war in Gundam and originally considered the “good guys” in the 1979 anime) used strong-armed tactics, looking to destroy enemy sympathizers to keep control of the Earth Sphere.

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An April 2012 trip to Sri Lanka was the basis for the publication of Serendipity, a bilingual book (English-Spanish) with 300 pictures and hundreds of anecdotes and historical facts about the former Ceylon, the island where—according to some traditions—the Earthly Paradise once existed. Sri Lanka is a precious stone floating in the Indian Ocean; it is the madness of nature inventing landscapes, and creatures, and aromas. Sri Lanka is the country with the longest uninterrupted written story, and the oldest tradition in engineering. It is also, one of the most important Buddhist centers of the world. But these things rarely make the news; only the bloodshed seems to exist in the media. This presentation summarizes the content of a publication intended to remediate the distorted image of the island, by showcasing the beauty of the landscape and the warmth of its people.

This presentation focuses on media representations of the Cold War, specifically examining a Japanese animated science fiction television program called in English Mobile Suit Zeta Gundam (1985-1986). Part of the much larger animation franchise Mobile Suit Gundam first airing in 1979, it became such a huge phenomena (like a combination of Star Wars and Star Trek in the U.S.) that new stories have aired, premièred in movie theaters, or been released on home video almost every year since 1985. As noted science-fiction author Ursula LeGuin explains in her 1969 novel Left Hand of Darkness, all good science-fiction works do not look to the future but, instead, provide a window into the present. And, the Gundam franchise, an animated program not just for teenagers, certainly qualifies as world-class science fiction. Previously, in conference presentations, a book chapter, and a journal article, we have shown how 1979’s Mobile Suit Gundam and 2007-2010’s Mobile Suit Gundam 00 (part one of this two-part presentation), while following the main themes of all Gundam series, movies, and home video projects—environmentalism, antiwar messages, pleas for better communication between people, and coming of age stories—also attack the return of right-wing thought to Japan through glorifying the Pacific War era, and criticize both U.S. foreign policy after 9/11 and Japanese isolationism during that same period, respectively. In the case of Mobile Suit Zeta Gundam (Zeta Gundam for short), the creators of this sequel to the original Gundam disparage the actions the U.S. took, and was taking, in the early 1980s to fight the Cold War. In this 50-episode program, airing in 1985-1986, the Federation (the government located on Earth, victorious after war in Gundam and originally considered the “good guys” in the 1979 anime) used strong-armed tactics, looking to destroy enemy sympathizers to keep control of the Earth Sphere.
Heat shock transcription factor 1 (HSF1) mediates the response to heat in all cellular organisms. Two isoforms of mammalian HSF1, denoted α, and β, were previously known to be derived by alternate splicing of an additional coding exon. These forms differ by the presence of an additional 22-amino acid segment in the HSF1 α protein, as compared to β. Our previous studies in a mouse cell culture model show that these isoforms switch on different subsets of hsp genes and to different extents; for the target genes tested, HSF1 α was generally a better activator. This study provides evidence for expression of the mouse mRNAs for two more isoforms, also predicted to arise by alternate splicing, containing an additional 28 amino acid segment, denoted HSF1 gamma and delta. The inserts unique to these new isoforms are located upstream of the insert that distinguishes the α and β isoforms. Existence of these new isoforms was predicted by bioinformatic analysis of HSF1-expressed sequence tags using the basic local alignment search tool (BLAST). Comparative bioinformatic analysis suggests many vertebrate species, including zebrafish, clawed frogs, mice, and humans, possess these isoforms. Based on reverse-transcriptase PCR analysis and validation by DNA sequencing, the HSF1 gamma isoform mRNA is widely expressed, while HSF1 delta may be expressed only in certain tissues. Constitutive deletion mutant constructs of HSF1 isoforms gamma and delta substantially activate the small heat shock protein gene hsp27 when transiently transfected in NIH3T3 cells, based on real-time RT-PCR assays. Supported by NIH National Institute of General Medical Sciences grant 1 R15GM096231 to N.J. Bachman.

Nearly a third of the 215-acre surface area of the SUNY Oneonta campus is impervious to water, comprising rooftops, walkways, parking lots and roads. Recently our campus has experienced significant rainfall events, such as the storm of July 22, 2013, when 4.69 inches of rain fell in 24 hours, most of that in a single two-hour period. The 66.5 acres of impervious campus surfaces generated 2.9 million gallons of runoff, which overwhelmed the campus storm drain system. Despite a large network of storm drains underlying the campus, streams of water ran out of catch basins and manholes, impacting the landscape downhill. Unimpeded water flows can pick up roadway pollutants such as salt or oil as well as eroding soil, all ultimately adding to the silt and sediment load of the Susquehanna River. Erosion can (and did) undermine paving and displace gravel on campus parking lots. The July 22 storm may be viewed as an extreme example, but we have seen an increasing frequency of intense precipitation events, along with a gradual increase in total area of impermeable surface area from campus development over the past three decades. A traditional approach to stormwater management would involve installing more and larger catchments and piping to handle these periodic high flow events. That approach is costly and only displaces the problem downhill with even greater volumes and velocities of water. Can we do better? Could we emulate many other cities and municipalities across the northeast, which have integrated other stormwater management alternatives into their landscapes? Vegetation and landscape modifications can promote water infiltration, retain and redistribute runoff, and even absorb and filter out pollutants. Rain gardens or other bioretention devices can not only temporarily slow the sudden flows of runoff, they can also be designed to be aesthetically pleasing and provide a natural environment year-round. Pavers that are somewhat
permeable, or other surface and subsurface structures, could be identified and used to educate students and faculty on the need for responsible and sustainable stormwater handling. We invite the campus community to work towards investigating, developing and advocating for greener solutions to campus stormwater management.

Despite the rise of competing payment instruments over the last fifty years, checks remain a major component of the U.S. payments system. All of these alternatives now offer electronic payment and settlement, either from their inception (such as debit cards) or were converted to electronic processing (for example, credit cards). Checks were the last major non-cash payment instrument to be converted to electronic payment and settlement. In this paper, we examine the market and regulatory barriers that inhibited adoption of electronic check clearing, construct an empirical model of banks’ decisions of when to adopt, and estimate the magnitude of the network economies of this service. In particular, we identify a clear path for network economies to affect the benefits of switching to electronic processing, thus affecting banks’ adoption decisions and banks’ willingness to support knowledge spillovers. The transition happened faster than expected, perhaps because forecasters could not have known the cost savings that could be achieved from learning by doing, the size of the spillovers, or the ability of intermediaries to create price incentives. By striking a balance between encouraging the adoption of new technology and ensuring that the benefits of doing so outweigh the costs, the Check Clearing for the Twenty-First Century Act (Check 21) smoothed and hastened the transition. The experience provides an example in which government effectively encouraged technology adoption using a light touch.

The most significant challenge students encounter when learning organic chemistry is limited spatial ability when working with 2-D and 3-D molecular representations, and especially when interconverting between them. Computational chemistry is one way to address and overcome this problem, by allowing students to manipulate chemical structures on screen and move them in 3-D to visualize them from different perspectives, as well as to obtain important measurements and other data. Through funding provided by the TLTC Tablet Innovation Grant, we equipped students with iSpartan, a powerful and elegant iOS solution for molecular visualization, and iPad Minis that were available for students to check out from the Help Desk for course and personal use throughout the semester. Two new laboratory exercises were designed specifically to expose students to repeated 2-D/3-D interconversions, along with hands-on experience with a variety of molecular measurements to improve both spatial ability and understanding of the particulate nature of matter. The Minis were also used to enhance laboratory notebook records with photos and videos during two additional experiments, with concurrent cloud storage via Evernote and Dropbox. ColorAssist, a free color naming app (and an essential tool for visually impaired students), was used to help students provide precise descriptions of color in experiments. QR codes were used along with the Mini cameras to facilitate access to course content such as handouts and instructional videos. The presentation will include some of the resource types linked to QR codes, examples of student video and photo logs, some student perceptions of the project, and the statistical comparison of student performance in the iPad course versus performance in a prior course taught by the same instructor, statistically controlling for student academic ability using analysis of covariance (ANCOVA), with composite SAT scores as the covariate.
To Eat or Not to Eat? Dietary Trends in Prehistoric East Tennessee

Oral health is an excellent proxy for diet. Examining patterns of dental pathological conditions is useful in gaining insight into dietary trends within and between populations. The focus of this study is to investigate temporal and social trends at Hiwassee Island, an East Tennessee prehistoric site with two temporal components: Late Woodland (AD 900-1100) and Late Mississippian (AD 1300-1550). A sample of 130 adult dentitions was examined for the presence and severity of dental caries, a common pathological condition related to the consumption of carbohydrates, maize in particular. The results indicate that sex differences existed in the earlier period, with females having a greater prevalence of carious lesions than males; however, there were no sex differences in the later period, which confirms results from other Late Mississippian populations in the region. Additionally, female prevalence rates remain constant over time, while male prevalence increases temporally. These findings suggest there was a shift in how maize was used in the population. In the earlier period, maize was consumed as part of a female-dominated ritual (e.g., “Corn Mother”), while in the latter period maize was consumed as the main food source. In both periods, females consumed corn. The increase in the frequency of male carious lesions reflects their lack of maize consumption for ritual purposes or otherwise in the earlier period, and corn becoming a main part of the male diet in the later period.

Rated M for Mastery: Fractal Fit and Success in World of Warcraft

Previous research (Blau, Petrusz, and Carello, 2013) has suggested that people are in a kind of coordination with the events of their environment; specifically, their actions and perceptions match the fractal dimension of the events with which they are presented. Given that people are better and worse at that coordination (Blau, 2011) and get better at that coordination over repeated exposure (Blau, in prep), we seek to understand whether that coordination confers any advantages. Given the lack of control over the structure of events in real life, and the lack of interaction with movies, we chose to study an environment that is easily controllable, easily recorded, and contains obvious success measures. Participants played a video game, *World of Warcraft*, as the “tank,” the leader of a group of players, in a closed off portion of the game. We measured how closely the structure of the participants’ behavior matched that of the game and the other players—their “fractal fit”—and examined its effect on individual and group success, broadly construed. Fractality does seem to predict success, but its effect may not be straightforward. Results are discussed.

Predictors of Verdict Change: The Role of Need for Cognition and Authoritarianism in Jury Deliberations

Previous studies have examined how characteristics of individual jurors affect jury deliberations and jury verdicts. In this study, we examined the role of Need for Cognition (NC) and scores on the Revised Legal Attitude Questionnaire (RLAQ), a measure of authoritarianism, in the context of mock jury deliberations. More specifically, we were interested in how mock jurors’ NC and authoritarianism are mediated by individual perceptions of jury dynamics to create change between pre-deliberation and post-deliberation verdicts. Participants were 756 community members (55% female and 42% male) from a Northeastern city serving as mock jurors in a larger study on jury decision-making. The mean age of participants was 36.8 (SD = 13.7), and ranged from 18 to 80. The sample was racially diverse: 46.4% White, 28.4% Black, 9.5% Hispanic, 12.4% “other.” After providing informed consent, participants completed a series of attitudes measures and viewed a DVD of a mock armed-robbery trial. The trial lasted approximately 1.5 hours. Participants rendered an individual verdict before they deliberated in “juries” of 4-9 people for approximately 45 minutes. Participants then completed post-deliberation questionnaires and rendered another verdict. Using path analysis, we tested a model of the process by which NC and RLAQ scores affect mock jurors’ perceptions of group dynamics, the deliberation process, and the magnitude of change in jurors’ individual verdicts before and after deliberations. RLAQ scores directly predicted pre- and post-deliberation verdict; however, NC scores only predicted post-deliberation verdict through group processes. Thus, as hypothesized, NC played a role in the deliberation process.
This presentation highlights an important chapter in New York history, and the ongoing relationship between New York City and its upstate watershed. The Battle for Water: One Big City and Many Little Towns is a one-hour audio documentary based on first-person accounts of the seven-year struggle that culminated in the groundbreaking New York City Watershed Memorandum of Agreement (MOA), which was signed in 1997. Visitors will be able to listen to the documentary and learn about the Agreement, which is considered a turning point in historically bitter upstate-downstate relations. Those interested in the environmental regulations that govern the 2,000-square-mile NYC Watershed, the politics behind Watershed-NYC relations, and the balancing of environmental protection with economic development will find these first-person accounts fascinating. Mediation and conflict resolution practitioners will also glean insights from the compromises that were made by all sides to arrive at mutually acceptable solutions to some very thorny issues. The Agreement continues to influence the lives of both stewards and consumers of New York City water and has attracted international attention for its balance of environmental protection and economic development. Producer Nancy Burnett is an adjunct instructor in the Communication Arts Department and a veteran radio producer. The Battle for Water has been broadcast on radio station WJFF in Jeffersonville, NY, and is archived on the Catskill Watershed Corporation website at www.cwconline.org. Copies have been distributed to Catskill Watershed Corporation Board members and each town supervisor in the Watershed. Burnett’s oral history series Behind the Scenes interviews with negotiators from the Watershed, the City, the Governor’s office and the environmental community were recorded in the pivotal moments after the signing of the draft MOA in 1995, and following approval of the final agreement in 1997. It is these interviews that now form a riveting story of conflict resolution. Audio CDs and transcripts of the interviews may be found at 24 public libraries in the Watershed, as well as at Resnick Library at SUNY Delhi, MacDonald-DeWitt Library at SUNY Ulster, Milne Library at SUNY Oneonta, and Hermann Memorial Library at Sullivan County Community College. In New York City, the collection can be found at the NYC DEP archives (420 East 38th St.), the Municipal Archives of NYC (31 Chambers St.) and the Millstein Division of U.S. History at the New York Public Library (5th Ave. and 42nd St.). Behind the Scenes is also archived at the Delaware County Historical Association in Delhi and the Catskill Center for Conservation & Development in Arkville. Transcripts, photos of the interviewees, and background information are archived on the CWC website, at www.cwconline.org. For more information, contact the author.

In an old metal trunk, Norma Lenschow stored photographic prints and negatives, color slides, notes, letters, and other materials dating from her time as a Lutheran medical missionary in an area of Papua New Guinea largely unknown to most Westerners. Sequestered for over a half century, the collection’s existence was known only to a few members of Lenschow’s family. The collection includes a remarkable period color slide show on the Enga people, augmented by script. To render this significant work available for specialist and student research, Lenschow’s collection was thematically organized, scanned, and transcribed. In addition, original commentary was composed to accompany and illuminate the primary documents which form the basis of Cannon’s forthcoming book, The Enga, Papua New Guinea, 1955: Photographs and Letters of Norma Lenschow. Dr. William Simons, Professor of History, served as historical consultant. Primary source documents can pique student interest in learning and render the past pregnant with meaning and relevance. Lenschow’s photographs possess a clarity and nuance of detail lacking in previously published illustrative material related to the Highlands of Papua New Guinea during the period of initial contact between traditionalism and modernism. Beyond enlarging our knowledge of the Enga people in the Highlands of Papua New Guinea, the Lenschow collection provides a valuable window to women’s sphere, missionary activities, and religion in the “high noon” of the American century. Norma Lenschow lived amongst the Enga prior to much of the field work by subsequent anthropologists. One of the biggest challenges encountered in the composition of the book involved the slide collection. Ironically, Lenschow’s 1950s photographs retain their visual integrity better than those published a generation later in the 1970s. Although the colors are remarkably well-preserved given their age, many of the slides showed signs of use and age such as fingerprints, dust, and dirt.
In order to discuss energy efficiency, we must know the importance of energy. Energy plays a critical role in our life, our living, our health, transportation, and industry. We are dependent on energy; its wise and effective use is therefore our concern. For example, a better insulated house is an energy efficiency issue. Energy is also closely related to our environment, and is associated with the concept of “sustainability.” Energy efficiency means we should use less energy for the same service, and is arguably more important than “energy conservation,” or reducing energy use. Lowering the temperature in buildings is conservation; increasing the air conditioning temperature is another example. Energy and energy sustainability are closely related. Due to the scarcity of fossil fuels, we must search for and generate new sources of energy, such as wind power, hydroelectric power, solar thermal heating and photovoltaic cells (to allow generation of electric power from solar energy). Use of biomass and tidal power for generating electricity are other examples. Reducing fossil fuels use is directly related to our environment. Use of petroleum, coal and natural gas for energy generates CO₂ gas, which directly pollutes our environment; thus, it is an issue we must face. Further, we cannot have a good life without “transportation,” including transportation of materials, humans, food, and many other types, which requires energy. All the above mentioned issues will be discussed in this presentation.

Experiential Learning (EL) theory represents a framework for the study of how people learn. Kolb (1984) defines experiential learning as “the process whereby knowledge is created through the transformation of experience” (p.38). It is suggested that people best achieve necessary knowledge and skills through experiences that involve working with others (Vesper et al., 2010). Stock markets are at the center of today’s economy (Hafer & Hein, 2007). Despite the positive relationship between stock returns and marketing activities such as product innovations (Srinivasan et al., 2009), the discipline of fashion marketing has not been aggressively devoted to teaching financial and stock trading systems in the classroom. The purpose of this study is to enhance student motivation and learning of fashion financial markets and various determinants that influence the stock trading markets in the context of the fashion industry. In adapting the EL perspective to teach stocks and stock markets, an experiential project titled “Mock Stock Trading Project” was developed and used in a fashion marketing class. The experientially based project helped students understand the fundamentals of stock markets, and their application to the fashion industry. Student feedback indicated that they enjoyed learning the principles of stocks and stock markets and implementing the basic concepts to the fashion context using real-time information and resources. Some students suggested having more time to study global fashion stocks and finance markets. Overall, this experiential learning methodology enabled students to voluntarily seek, actively participate in, and critically analyze the assigned issues in a fashion marketing classroom. This confirms that allowing a variety of experiences in the classroom helps students understand basic concepts and learn ways to apply those concepts to the necessary environments.
This study examined the stereotypical characteristics associated with single or coupled college students. We explored whether endorsement of these stereotypical beliefs are impacted by the gender of the target or the participant. Participants were first exposed to a manipulation that primed negative characteristics of single students or students in relationships. Participants were then randomly assigned to one of four impression formation conditions: single female, single male, female in relationship, or male in relationship. Analyses revealed a significant three-way interaction, showing that stereotype condition, target gender, and the target’s relationship status had an impact on impressions and evaluations of the target.

The employment market has radically changed, especially for college-educated professionals. The term “Gigonomics,” coined by Tina Brown, describes the trend toward those individuals working several jobs to make a living. Individuals are paid based on their level of knowledge and skills: the more skilled, the higher the wage an individual can earn. The difficulty has been in assembling documentation concerning these skills. Research on the legal services industry, for example, indicates that there are core competencies that are required. In the past, organizations knew the level of skills they were hiring based on the reputation of the academic institution or previous employers; that is no longer the case. This presentation will highlight the need to assist individuals in preparing learning portfolios documenting their experiences. Many institutions provide evaluation of learning portfolios in order to provide academic credit. Documentation should initially be available to employers concerning the knowledge and skills that have been acquired in such experiences as internships, skills competitions and volunteer/service learning activities. As a point of contact with current students and alumni, Career Development Centers at educational institutions could become the repository for such information and could assist in assessing those experiences. Alternatively, professional organizations could provide this service.

Nitrogen isotopes are used as an indicator of trophic level in living organisms. The tissue of organisms high in the food chain record high δ15N values compared to the tissue of organisms lower in the food chain. Generally, a fractionation of ~3.4 per mil occurs in nitrogen from prey to consumer. A recent study by Casey and Post (2011) reported lower than expected nitrogen values of Neverita from Long Island Sound, indicating a lower trophic position in the food web. Neverita is a naticid gastropod (or moon snail) known as “predatory snails,” because they drill holes in the shells of clams and other snails with a proboscis to consume the flesh inside the shell. Because naticid gastropods are known as predators (secondary consumers), they should record high δ15N values compared to their prey. In order to resolve these anomalous δ15N values, Neverita individuals are kept in aquariums to control their food source for an investigation into their feeding habits. Moon snails were collected from the beach at Milford, CT in August 2013. Fifteen tanks were established, with one moon snail individual in each tank to prevent competition between snails for clams. Each snail was marked with a notch on its shell to determine growth at the end of the experiment. Snails are fed five clams (Mercenaria) every two weeks; any uneaten clam is removed and placed in the holding tank, to be kept until the end of the experiment. The Long Island clams are kept in six separate tanks with 250 individuals in each. They are fed stock algae to control their food source. Both the algae and clams are sampled every two weeks, when the snails are fed, and saved for analysis to track changes in nitrogen. The current experiment started on August 20 and will run for three to four months. At the end of the experiment, algae and the tissue of clams and snails will be ground up and analyzed for nitrogen. Additionally, shells of the clams and snails will be analyzed to compare nitrogen values of the soft and hard parts of the organisms.
The Higgs boson plays an important theoretical role in the standard model of particle physics, by explaining the origin of all mass in the universe. Although the existence of this particle was postulated fifty years ago, the first observation of a Higgs-like boson was confirmed only last year, in 2012, at the Large Hadron Collider. (Because of this, the original proponents were awarded the 2013 Nobel Prize in Physics.) But emerging physics beyond the standard model requires new symmetries not easily reconciled with the mathematical underpinning of the traditional Higgs field. These puzzles speak to suggestions that our universe is a kind of hologram. This presentation will explain recent developments in the author’s work, developing quantum field theories with Higgs-like scalar fields in the context of extended Supergravity, wherein the Higgs field is linked with a new class of conformal compensators. And, the presentation will explain what these technical terms and ideas mean to the world as we know it!

Organisms must survive a variety of stressful conditions, including sudden temperature increases that damage important cellular structures and interfere with essential functions. Proteins activated in response to elevated temperatures are called heat shock proteins (hsps). Heat shock proteins bind to misfolded proteins to repair them, promoting survival. The main regulator of genes for hsps is called Heat Shock Transcription Factor 1 (HSF1).

Humans, mice, and other vertebrates express four different types of HSF1, called isoforms, which differ structurally in the presence or absence of either of two short regions of 28 and 22 amino acids. We have launched this study in order to investigate 1) what the separate roles of the individual isoforms are, and 2) to learn whether they functionally interact with each other. We have constructed four sets of plasmids, which enable the individual mouse HSF1 isoforms to be expressed in tissue culture cells, with or without an activating deletion. Each set contains specific protein tags (either an octapeptide known as FLAG or a section of the flu virus “spikey” protein hemagglutinin [HA]) with one set tagged at the beginning (N-FLAG or N-HA) and another set tagged at the end (C-FLAG or C-HA) for each tag. Plasmid constructs were made by overlap extension PCR or subcloning of restriction fragments into the expression vector pcDNA3.1/V5-His-TOPO. The DNA sequences of the plasmid constructs were confirmed by dideoxysequencing. The production of the tagged proteins was detected after transient transfection of NIH 3T3 cells via Western analysis. Three of the four sets are complete or mostly complete, as confirmed by binding of HA or FLAG primary antibodies, and later reincubation with HSF1 primary antibodies. The fourth set (N-HA tagged HSF1 isoforms) do not appear to be expressed in mouse cells following transient transfection. The three confirmed sets of plasmid constructs comprise highly specific tools for investigating HSF1 function in mouse cells. Supported by NIH National Institute of General Medical Sciences grant 1 R15GM096231 to N.J. Bachman.

In May of 2013, Kathryn Finin (English) and Josh Frye (Communication Arts) offered the first, faculty-initiated workshop at SUNY Oneonta on infusing sustainability throughout the curriculum. We solicited proposals from faculty who were interested in incorporating environmental or sustainability issues into an existing course or developing a new course with a sustainability focus. This pilot project, based on nationally recognized models known for their innovative approach to curricular change, provided an intellectually stimulating and collegial experience for eight teaching faculty from six different departments at SUNY Oneonta. Participants received an honorarium of $1,000 upon completion of a new or revised syllabus (with the intent to teach the course by the spring semester of 2015 or sooner). The two-day workshop explored how we can meaningfully integrate sustainability – broadly defined – into our classrooms. More specifically, we focused on the following: 1) presentations on specific ways to integrate sustainability, how to connect the principles of sustainability to the “big ideas” in various disciplines,
and sustainability and learning outcomes; 2) small group discussions of the faculty projects, crossing the disciplines, and establishing interdisciplinary learning outcomes; 3) talks from local resource experts, both on and off campus; and 4) a local woods walk and discussion of place-based learning. The workshop has produced a significant “greening” effect on the curriculum within this first semester; six of the participants are integrating some or all of their proposed changes in one or more courses this semester, while the other two will teach their new course within the next year.

The relative loss of kinetic energy in a totally inelastic collision between two objects is characterized with regard to mass-ratio as well as the ratio of initial momenta. The limiting cases, extrema, and inflection points of this interesting rational function of either ratio are discussed.

The activities of businesses and governmental and non-governmental institutions continually shape and re-shape urban landscapes. Indianapolis, Indiana is no exception to this rule. Uneven intervention by local businesses and institutions, combined with the unequal distribution of resources that results from such interventions have contributed towards the development of environmentally unjust communities and to the unfair treatment of such areas through processes like manipulation, co-optation, and “revitalization.” The two study areas have endured different and multiple interactions with governmental and non-governmental institutions, resulting in different responses to their respective “natures.” The City of Indianapolis has long focused on promoting growth within its downtown core. As a result, the outlying neighborhoods have often been neglected by the City. This ideology is promoted via conservative pro-growth coalitions – local power structures consisting of property owners, elites and corporate interests, along with pro-development city agencies. These coalitions play a central role in community development in Indianapolis. The City of Indianapolis practices a particularly unique spatiality in its community development efforts, which serves to promote corporate interests and to attract new investment and well-paid, highly-educated residents to the downtown core. These processes ultimately produce a distinct pattern of uneven investment across the City that is evident in the rapid gentrification and redevelopment of some neighborhoods, and the decline of others. Of particular interest here is the culmination of the aforementioned processes in the production of environmentally unjust communities within the City of Indianapolis.

Comparative gene identification isolate 112 (CGI-112) is a human gene product that has recently been identified as a component of the endoplasmic reticulum-associated protein degradation (ERAD) pathway, which serves as a “quality control” mechanism for proteins destined for secretion outside of the cell. If a secretory protein fails to adopt the correct functional structure, molecules of the ERAD network will direct the misfolded protein to the proteasome, where it is broken down. Diseases associated with ERAD malfunction include Parkinson’s, cystic fibrosis, and HIV. A complete understanding of the intermolecular interactions that modulate ERAD activity requires knowledge of the three-dimensional structure of each constituent molecule. The aim of this work is to produce a theoretical model of the structure of CGI-112 via homology modeling. This technique predicts the structure of a protein based upon amino acid sequence similarity to a protein of known structure. Although CGI-112 does not share significant sequence identity with any protein of known structure, structural similarity to the MOV34 protein, a component of the 26S proteasome, can be inferred based upon CGI-112 binding to antibodies that recognize MOV34. Therefore, the known structure of human MOV34 domain has been used as a template for CGI-112 structure prediction.
Contagious yawning has thus far been documented in humans, some non-human primates, one bird species, and possibly domesticated dogs. While comparative research in this area has grown substantially in the past few years, the interpersonal factors influencing contagious yawning in humans remain relatively unknown. Extending previous studies showing various in-group and status effects in non-human great apes, we investigated how the political affiliation (Democrat versus Republican), status (high versus low) and ethnic background (in-group versus out-group) of target stimuli influences auditory contagious yawning, as well as the urge to yaw in humans. Responses were analyzed from 60 undergraduate students in the U.S. following exposure to either breathing (control) or yawning (experimental) vocalizations paired with images of former U.S. Presidents and their respective Cabinet Secretaries of Commerce. The overall results validate the use of auditory stimuli to prompt yawn contagion, with greater response in the experimental than the control condition. There was also a negative effect of political status on yawning across conditions, while the urge to yawn remained consistent between trials, suggesting that people inhibited yawns when viewing high-status figures. For the experimental condition, we demonstrate a significant positive effect of ethnic in-group bias in contagious yawning; i.e., participants from ethnicities represented by our political stimuli were more likely to yawn contagiously. In contrast, we found no evidence for a political in-group bias. These findings are discussed in terms of empathy, attention levels and cultural factors.

The term “Big Data” typically refers to datasets so large they are difficult to manage and analyze using traditionally available tools such as relational database management systems (RDBMS), statistical software such as R or SPSS, or Microsoft Excel. In fact, big data is more than just the amount of the data—it also includes the need to perform complex analytics on the data beyond the “advanced counting techniques” provided by standard RDBMS, including trend analysis, clustering, and principal component analysis (PCA). Primarily undergraduate institutions (PUIs) such as SUNY Oneonta typically have neither the computing and networking infrastructure, nor the support personnel, needed to manage and do the analysis of these large multi-terabyte datasets. This poster outlines the information technology (IT) components of a collaborative project between SUNY Oneonta and the Center for Computational Research (CCR) at the University at Buffalo to provide instructors and their students at SUNY Oneonta with readily deployable pedagogical and research strategies for grappling with big data in their respective disciplines. In essence, this project’s plan is to infuse a “highlight reel” of data science into the undergraduate social science programs (sociology, political science, and philosophy) at SUNY Oneonta. This poster highlights three of the four major components of the project: 1) the software used to create and analyze social media data from multiple sources, 2) the IT infrastructure and software environment created to support the creation and analysis of these large datasets, and 3) the collaborations the project has established with its business partners.

On July 28 1794, Antoine-Claire Thibaudeau, a veteran legislator of the French Revolution, saw several of his colleagues who had been purged from the National Convention being taken to the guillotine: “Tied together with rope, they marched with their heads bowed, with a shameful air, like petty thieves.” It was singularly unpleasant, he related, to see the young revolutionary Louis-Antoine Saint-Just, “26 years, handsome, spiritual, educated (?) full of promise for the future”—and, until this moment, a major player in the government of the Terror—dragged to the scaffold as a result of the Revolution’s latest purge. Due to relentless faction fighting in the French Revolutions, several hundred of its leading politicians, such as Saint-Just, were arrested, imprisoned, and, in many cases, tried and executed between 1789 and 1799. Students of the Revolution know about the major purges of the Terror: the arrest of the Girondins, Danton’s trial, or the execution of Robespierre. The purges of the Reaction (1794-95) and the
Directory (1795-99), though no less significant in scale, are, by contrast, not well known. This study (a book manuscript in progress as well as a forthcoming article in the Journal French Historical Studies) represents the first comprehensive history of all the main political purges of the French Revolution. It highlights the role that the purging played in the repression of political opposition, stressing its importance not just during the Terror, but beyond, and assesses its short- and long-term impact on French politics and society. In addition, the work offers a new interpretation of the Terror by showing continuity of political violence in the Revolution’s history. Based on new research in archival as well as printed primary sources, it illustrates that the practice of purging, involving a large and fascinating cast of characters, most of whom became both perpetrators and victims, impacted continuously on French revolutionary politics at the highest level. By putting the well known purges of 1793-94 in the wider context of revolutionary purging, it queries the idea of a single event that can be described as “the Terror.” Purging, political violence, and the repression of the political opposition, it argues, were central, continuous aspects of French revolutionary history until the republic's collapse in 1799.

In advance of high-volume hydraulic fracturing activities planned for central New York, we have initiated an inventory of groundwater chemistry in more than 50 separate wells. A few dozen of the wells were sampled repeatedly. Wells penetrate unconsolidated sand and gravel and Devonian-age sedimentary strata, including the Marcellus Shale. We find that deep wells are more concentrated, exhibiting higher pH, and greater alkalinity. We tested for over 60 inorganic elements; 30 to 45 elements were detected in most wells, and 15 major and minor elements were detected in all wells. We present a statistical summary of elemental concentrations for all of the wells sampled. Well chemistry provides a baseline for detecting change in a well. We introduce a simple method for comparing wells against each other: the elemental concentrations in one well are plotted against another well, and a power law is fit to the data. The parameters (that is, the coefficient and the exponent) in the power law, along with a measure of the scatter, provide a powerful tool to characterize similarity and uniqueness. When the power law coefficient, correlation coefficient, and power law exponent approach unity, the samples approach identical concentrations. A high degree of similarity implies uniform dilution or concentration for all species being compared. When the exponent approaches unity, the coefficient indicates which sample is more or less concentrated than the other. When the exponent is greater than unity, major elements are more enriched in one well. The correlation coefficient (R^2, in this case) measures the scatter around the power law relation. As the correlation coefficient approaches 0, a wide scatter exists, even if the exponent indicates similarity (that is, a value close to unity). We apply this method to our wells and discover that individual wells look far more like themselves than any other well. One implication is that groundwater flow paths have characteristic chemical reactions with rocks along their path to the well, and reach a steady state concentration. Temporal variations amount to uniform changes in concentrations across all elements, such as might occur from mixing with very fresh water. Any mixing with non-identical water will yield either more scatter, or values for the power law parameters other than unity. We show that the elements commonly detected in all wells provide a local “fingerprint” of groundwater.

The Faculty Research Grant program is one of the greatest assets to academic employees at SUNY Oneonta. As implied by the name, the main thrust of the program is to enable research endeavors to spur further research, with an aim to increase external research funding. The program, however, has an even greater impact locally. The research performed under these grants not only advances individual research programs, but can create increased opportunities for graduate students and revitalize undergraduate coursework. As an example, a Faculty Research Grant funding the development of

Les Hasbargen, Devin Castendyk
(Earth & Atmospheric Sciences),
Leandra Keefe (Barton & Loguidice),
Fiona Lowry (University of Minnesota),
Myles Moore, Joseph Spaulding, Alayna Fuess (SUNY Oneonta students)

Groundwater Geochemistry: Are Wells Unique? A Case Study From Upstate New York

Jeffrey Heilveil, Tami LaPilusa
(Biology)

Faculty Research Grants: Facilitating Research Tool Development, Fostering International Collaboration, and Enabling Publication Generation, Graduate Program Enhancement, and Undergraduate Course Enhancement
microsatellite markers for the blue land crab, a commodity species in The Bahamas, allowed the authors to beat two laboratories in other countries to the creation and publication of a laboratory tool for use in species receiving increasing global attention. The development of this tool has also created an international collaboration with a researcher at Plymouth University in the UK, as well as the enabling new research questions to be addressed on campus and globally. Furthermore, a windfall in the development stage enabled molecular markers to be created for two additional species at no additional cost to the College. The marker development for these two additional species has served as a basis for two graduate theses, and has allowed the opportunity for students in BIOL269: Methods in Population Genetics to be part of the process, increasing student involvement in cutting-edge research. The data generated with these new tools also allows students to see how research questions are created, experiments designed, and hypotheses tested, which greatly increases the educational value of the course. Additionally, this Faculty Research Grant has resulted in two publications, with a third in preparation. At a time when external funding has become exceedingly competitive, the Faculty Research Grant is a critical tool in providing faculty with the means to generate preliminary data and obtain necessary publications to convince funding sources of feasibility.

Matthew Hendley (History), Trudy Thomas-Smith (Chemistry & Biochemistry), Michelle Hendley (Milne Library)

Contributions of African Americans to Science and Engineering: A Presentation and Data Gathering Display

Our cross-disciplinary project in the History of Science, which began with the question “What does a scientist look like?” is a collaborative effort, involving research conducted by faculty members in the departments of History and Chemistry & Biochemistry and the Milne Library, along with SUNY Oneonta undergraduate student researchers. Research shows that the stereotypical image of a scientist held by college and school-age students is an older Caucasian male (usually with disheveled hair in the manner of Albert Einstein). This stereotype led our research team to ask two additional questions: “What are the achievements of scientists who do not fit this image?” and “Why don’t students know more about these other scientists?” With these questions in mind, the research team set about re-examining the contributions of minority scientists to scientific progress in the U.S. and Canada, as well as their relative absence in the published Histories of Science. The first stage of the project (funded by an IDEA Grant) is presented here. Stage Two of the project will solicit feedback from viewers of the display to measure their awareness of the achievements of scientists of color. Using this data, we will explore potential linkages between expanded ideas of career possibilities and ideas of self-identity for students of color.

In Stage One of our project, there was an intensive review of 61 textbooks and history of science books published in the U.S. and Canada between 1863 and 2008 held at Milne Library and other libraries. Textbooks were examined for any references to a list of well-known scientists of color. Stage One also included archival and library research at the University of Toronto, Toronto Metropolitan Reference Library and the General Electric Global Research Center in Niskayuna, NY, as well as the National Library of Medicine, the National Agricultural Library, Library of Congress and the National Library of Medicine. The review of dictionaries of historical biography, reference books on the history of science, and K-12 textbooks in the aforementioned institutions showed insufficient historical coverage of the contributions of traditionally underrepresented minority scientists. Detailed analysis of more in-depth historical sources, as well as the aforementioned archives, reveals that several high-impact scientific discoveries are the result of the work of minority scientists, including seminal work with the underrepresented minority in the role of principal investigator. This presentation highlights the achievements of several well-known, and some lesser-known, scientists and engineers, including Benjamin Banneker, Percy Julian, Elijah McCoy, Elmer Imes, Marie Daly and Willie Hobbs Moore. It will show that many of the contributions of minorities have led to the discovery of fundamental principles upon which modern instrumentation, engineering and medicine is based. With a view to eliminating the tendency to confine discussions of African American scientists to books of African American History and to Black History Month, the presentation also puts the historical achievements of African American scientists into the context of the history of race relations in the U.S. Audience members who view the display will be asked to fill out a brief survey. To our knowledge, this is the first cross-departmental project involving the History of Science conducted at SUNY Oneonta and remains the only such project being conducted at the College at this time.
Are physical spaces still essential in academic libraries in the digital age? One of the action items in the Milne Library’s 2012-13 assessment plan was to survey faculty who use the Library’s locked study carrels to determine both need for the carrels and satisfaction with the new guidelines for carrels. The Library has fourteen locked study carrels located in on the third level of the building, which is designated as the Library’s quiet study floor. According to the guidelines, which were approved by the Library Committee in February 2012, locked study carrels are “available to faculty based upon an agreement with the library and the Library Committee.” First priority is given to tenure-track faculty, then tenured faculty and, finally, to any faculty member who needs study space. Carrels must be requested every year. The carrel survey was conducted between March 22 and April 10, 2013. Twenty-seven faculty were surveyed and twenty-two faculty completed the survey. The majority of carrels holders are from departments in the School of Social Science (10), followed by the schools of Economics and Business, and Arts and Humanities (3 each). Based on the responses to the survey questions, the results demonstrate a strong need for the carrels. For example, respondents overwhelmingly agreed that carrels aid research necessary for successful applications for faculty term contract renewal and continuing appointment, provide a better working environment for research than their departmental offices, and are important for faculty retention. The most-cited benefits of carrels included a quiet place to work and proximity to collections. Thus, this study shows that, despite the proliferation of digital resources at Milne Library, physical spaces in the form of locked study carrels still form a vital part of the Library’s mission.

This presentation reflects on the uses of popular culture as an aid to the construction of the fictional world of a novel in progress. More specifically, it addresses pop culture of the 1970s engaged in questions of ongoing civil rights. Several forms that are interrogated are Blaxploitation films, Funk music, and Southern Rock music. The presentation will include visual and auditory components, as well as text. Questions that inform the presentation include: 1) To what extent does popular culture represent or oversimplify cultural practices and values, especially within contexts removed from the sources of the cultural production? 2) To what extent are products of urban culture translatable to rural contexts? 3) What examples of cultural hybridity arise out of confluences of pop and folk cultures?

Imagine a person, a “lamplighter,” tasked with patrolling an infinitely long straight road with lamps placed at regular intervals. The lamplighter has two possible actions at a given point in time: take a step in one direction or the other, or toggle a lamp on or off. Hidden inside this scenario is an object known as the "Lamplighter Group," L2, which records all possible sequences of actions the lamplighter may take. When one sequence of actions is followed by another, they combine to form a third, and so there is algebra to be found here: this operation of combining sequences is akin to multiplication. Just as each real number has a reciprocal (i.e., a multiplicative inverse), each sequence has an inverse which undoes – that is cancels out – that sequence; however, unlike multiplication of real numbers, the operation of combining sequences is not commutative. Clearly the act of first toggling a light then taking a step has a different effect than first taking a step then toggling a light. This operation imposes a complex and highly symmetric structure on the Lamplighter group. One way to understand this structure is by representing it in the form of a graph, called a Cayley graph. In general, a group has many Cayley graphs, but a particularly nice Cayley graph for the Lamplighter group is known as the Diestel-Leader graph, an important and beautiful mathematical object in its own right. My research, in collaboration with Dr. Gregory Kesley of Trinity College, Hartford, CT, focuses on studying asymptotic properties of Diestel-Leader graphs. That is, we seek to understand all the different ways one can "go to infinity" within a Diestel-Leader graph.
One of the goals of ancient and medieval astronomy in India is to be able to compute the position of a planet or luminary at a given time. Due to the theoretical model used in the Indian astronomical tradition, in order to do so, it is necessary to use trigonometry, in particular the sine and versed sine functions. To practically compute these functions, Sanskrit astronomical texts give tables of sines or sine differences, which can subsequently be used to find the sine or versed sine of any angle via linear interpolation. The presentation will give examples of such tables and explain how they were used.

This presentation explores where the philosopher Gillian Rose, who died of ovarian cancer in 1995 at the age of 48, might have been trending when she wrote, in Love’s Work, “O reason–ambidexter implement for effecting the irrational.” This is done by interrogating the claims made by Brook Ziporyn regarding the work of the Zhiyi and its application to the problems of late modern reason. Vital to this interrogation is a fundamental paradox at the core of both Rose’s assertion and Ziporyn’s interpretation of key teachings of Tiantai that reason is an instrument of the irrational and the irrational is an instrument of reason.

A prototype circuit was fabricated to electronically control and switch current and voltage readings across the perimeter of a thin-film sample. This method, called the van der Pauw method, is commonly employed to study the Hall Effect in thin films. The circuit consists of a micro-controller that controls all the switching on a breadboard. This was done with the use of a junction gate field-effect transistor and diodes for processor protection. Several relays and a six-position selector switch were employed to do the switching between sample contacts. This poster will present the results of tests performed on a metallic thin-film sample and discuss any issues related to sensitivity and noise in our measurements.

Service learning has been used as a pedagogic tool on the SUNY Oneonta campus for over 15 years. Teaching faculty integrate service-learning course content to create mutually beneficial relationships between faculty, students, the community, and community partners. We will demonstrate the variety of applications of service-learning by showcasing faculty who have successfully integrated it into their classrooms. In addition, ideas for service-learning in a multitude of disciplines will be shared. Handouts will be provided for those interested in learning more about the use of service learning.

With the rapid development of technology at the end of the 20th century and the beginning of the 21st century, composers are now able to develop systems that can respond in real time to certain stimuli. This allowed the introduction of Interactive Systems, which are defined by Robert Rowe as “those whose behavior changes in response to musical input.” The Gesture and Interaction project at IRCAM (Institut de Recherche et Coordination Acoustique/Musique) defines augmented instruments as the ones “that have been fitted with sensors so that information concerning gestural parameters can be transmitted in real time.” An “augmented” conductor uses cameras and sensors to capture his or her movements and “translate” into images and sound. This presentation investigates possibilities used in the author’s piece Platonia, and discusses its aesthetic principles.
Aquatic Invasive Species (AIS) threaten to change the ecology and pristine aesthetics of our local lakes. We now know that any visible amount of green material could infest and choke our lake with Water Thyme (Hydrilla) which has been confirmed in the Erie Canal, some ponds by Binghamton, and in the Cayuga Lake inlet. We know that any small amount of water could be holding the larval stages of Quagga mussels, which will dominate local lake bottoms at depths far greater than where Zebra mussels will settle, sucking the microscopic algae out of our water and changing these lakes fundamentally. We know that any small amount of mud on a boot, or a boat, kayak or canoe, could introduce Asian clams that will quickly reproduce and fill the few sandy beaches around our local lakes. We know that Spiny Waterfleas are rapidly spreading across lakes in the State, changing the community of small animals and plants that feed our larval fish. The preferred method of preventing AIS spread is by cleaning boats and equipment exposed to lake water with hot (140°F) soapy water, draining any water holding compartments and drying the boat or equipment for five sunny days. This Clean-Drain-Dry ideal is often difficult to achieve, however. There are “solutions” all of us can use to thwart these AIS invasions. A few minutes’ soak in a concentrated solution of salt (NaCl) or salt substitute (potassium chloride [KCl], less corrosive and more lethal), or in bleach or a more concentrated solution of vinegar, will kill these invasives. Boats, kayaks and canoes should never be moved from waterbody to waterbody without being cleaned, drained, and dried, but can one be really certain that every bit of water, sediment, or green growing stuff has been removed? If not, employ one of these “solutions” – salt, salt substitute, bleach or a concentrated vinegar solution – pour some in your boat bilge or in your kayak compartments, and rinse your fishing tackle in your favorite “solution.” AIS prevention training is available from the Catskill Regional Invasive Species Partnership; contact the authors.

Eurasian watermilfoil (Myriophyllum spicatum) is a little-noticed part of the aquatic plant community in its native Europe, while it disrupts recreational uses of Connecticut lakes and ponds. Bluegills (Leptomis macrochirus) in Woodridge Lake, CT are almost certainly nonnative. Bluegills are unique in their ability to remove insect herbivores from milfoil. Augmentation of New York lakes with milfoil insect herbivores has yet to provide a consistently satisfactory result, whereas manipulating fish populations to control bluegill appears to indirectly control milfoil. In evaluating Woodridge Lake for walleye (Sander vitreus) stocking to initiate a trophic cascade to reduce Eurasian watermilfoil biomass, we determined that Eurasian watermilfoil was being controlled by a mix of at least five different herbivores. We are accumulating data to make a walleye stocking recommendation to more completely control Woodridge Lake’s milfoil. This project follows work ongoing in Madison County, NY. We note the differences in working in a river lake with a milfoil growing season that is approximately 60 days longer.

A wooden runabout boat dating from the era just before World War II (1939-1945) has been found in Otsego Lake. The boat, approximately 25 feet long, shows evidence of a catastrophic fire. The wreck was discovered last summer during a Klein side-scan sonar survey conducted by G.K. Consulting, a New Hampshire-based company. Underwater archaeologist Joseph W. Zarzynski paid for the survey, specifically for the use of the Lake’s Biological Field Station (BFS) volunteer dive team, which is directed by scientist and SCUBA instructor Paul H. Lord; however, it was not until early August of this year, that BFS divers Bjorn Eilertsen, Zarzynski, and Lord visited the wreck. Seventy-three years ago, in August 1940, the Leatherstocking, a 24-foot-long Gar Wood runabout motorboat, caught fire after leaking gasoline. Reportedly, it burned for 45 minutes before sinking in the middle of the Lake. Renowned boatman
W.T. Sampson Smith owned the boat; earlier that day, Smith’s wife had taken the vessel with some passengers out to patrol a Star-class sailing race. When those onboard smelled gasoline, they returned the wooden runabout to its dock. Sherrill Woodbeck then motored the boat to the Smith boathouse for examination and repairs. After departing the dock, the boat caught fire and drifted northward. Woodbeck fought the blaze with a fire extinguisher, but was forced to jump overboard by flames, and was rescued by a passing boat. The Smith boat eventually burned nearly to its waterline and sank. (A local newspaper reported that W.T. Sampson Smith said there was enough boat insurance to cover the cost of the 1938 vessel.) Sitting upright on the lake bottom, the sunken boat’s metal cutwater in the bow still stands erect, but the fore deck is nearly burned away. The transom is burned, but is largely intact. The large engine block shows signs of the hot fire. Hull and deck debris lie inside and outside the sunken boat. The BFS dive team estimated that about 1% of the shipwreck was covered with zebra mussels because of its depth. Due to its age, the sunken vessel is considered “historic” and is protected by state and federal laws. The vessel’s name, Leatherstocking, is nearly synonymous with Otsego Lake’s distinct history. Furthermore, the boat is from an era when America was gradually pulling itself out of the Great Depression. The SCUBA team made a video of the shipwreck, but did not touch or disturb the historic discovery. The BFS dive team’s fieldwork is a multi-disciplinary project to gain a greater understanding of all the Lake’s resources, both natural and cultural. Boat wrecks fill in missing pieces of the Lake’s history and serve as lake-bottom oases that attract a variety of biota. The BFS dive team hopes the shipwreck will not be damaged, so that researchers in the decades ahead can use yet-to-emerge-technology to gain greater information about the sunken boat.

The Biological Field Station (BFS) Volunteer Dive Team has located the sunken wreckage of a 1948 plane crash in Otsego Lake, New York. On September 22, 2013 the dive team was investigating side-scan sonar images from a July 2012 remote sensing survey when the group found the heavily damaged remains of an Ercoupe single-engine airplane sunk in Otsego Lake. The dive was part of a long-term project to map the lake to gain a greater understanding of the cultural and biological resources in the historic waterway. The aluminum aircraft, distinguished by its unique twin-tail configuration, crashed into Otsego Lake around 3:00 p.m. on July 13, 1948. Two World War II veterans, Edward Francis and Harold Caulkins, both aged 24, were killed in the aviation accident. The bodies of Francis and Caulkins, as well as some parts of the plane, were recovered several hours after the crash. Francis was a flying instructor and had taken off from the Cooperstown airfield shortly before the plane accident. The Ercoupe was a lightweight, low-wing monoplane that started production shortly before World War II. Terry Crandall reported that, in 1964, he raised the sunken aircraft using a metal barrel and tire inner tubes as flotation; however, it broke from its towing harness and sank, to become a legendary mystery of the “Glimmerglass Lake,” as Otsego Lake is known. The BFS Volunteer Dive Team conducts a variety of SCUBA and scientific diving tasks around Otsego Lake, including installing navigation buoys, eradicating Zebra mussels from Cooperstown’s water intake pipe, and performing research dives to benefit the health of the nine-mile-long lake located adjacent to Cooperstown. Paul H. Lord, a Master SCUBA Diver Trainer and adjunct instructor of Environmental Sciences at SUNY Oneonta, directs the dive squad with assistance from Jim Vogler, instructor of Biology. Following this season’s shipwreck inventory fieldwork, the team will report to New York State, the custodial caretaker of this underwater heritage, with the locations and details of multiple shipwrecks and the sunken plane discovered this year.
Pearly mussels (a.k.a. unionids) are endangered native mollusks with a complex life cycle which typically includes fish parasitism, and which are easily disturbed by changes in watershed quality. There are four species identified by the New York State (NYS) Department of Environmental Conservation as meriting greatest conservation need (Species of Greatest Conservation Need: SGCN) that are historically found in the NYS portion of the Susquehanna River Watershed. These SGCN are the brook floater (Alasmidonta varicosa), the green floater (Lasmigona subviridis), the yellow lamp mussel (Lampsilis cariosa), and the elktoe (Alasmidonta marginata). Historic unionid sampling (Harman 1970, Strayer & Fetterman 1999) documents the Unadilla River’s unique pearly mussel diversity. Our survey was prompted by concerns over whey runoff. We surveyed the Unadilla River and five tributaries identifying sentinel locations and then resurveyed them. We found all four SGCN in the Unadilla River, one SGCN (elktoe) in Wharton Creek, and one SGCN (yellow lamp mussel) in the Butternut Creek. We found areas with thousands of recently dead pearly mussels. Pearly mussels are sensitive indicator species that are impacted by dissolved oxygen losses, siltation, endocrine disrupting chemicals, and other watershed human impacts. The Unadilla watershed is in need of attention, as it is unknown why so many mussels are dying.

The development of “Big Data” – including the explosive growth in the utilization of social media and data collected around consumer behavior – has created opportunities for social scientific research to gather and analyze information around a plethora of issues and controversies. One significant aspect of this mode of research are the “three Vs” of Big Data: volume (how much), velocity (how rapidly disseminated), and variety (different forms that these data are disseminated as, including text, images, and audio). A significant benefit of conducting social scientific research through Big Data is that it can be obtained without conducting surveys and/or interviews, thereby avoiding many of the response effects or limitations of interviews (such as the availability of respondents). Specific research into social media permits researchers to view the claims, concepts and apparent definitions communicated around specific concerns, thereby allowing for the inductive identification of concepts and categories and potentially avoiding inappropriate reductionism. This poster illustrates some of the advantages and difficulties in “Big Data” social scientific research, discovered during research conducted by three members of SUNY Oneonta’s “Big Data” Team Seldon: Team members Brett Heindl (Political Science), Brian Lowe (Sociology), and Greg Fulkerson (Sociology) have gathered data around a substantive topic utilizing Trackur (software that gathers “tweets” made through Twitter) and IBM Modeler data analytic software in order to explore their specific topics.

The Magneto-Optic Kerr Effect (MOKE) is observed when polarized light is reflected from a sample subjected to a magnetic field. This technique thus enables the determination of the properties of magnetic thin films. Depending on the sample type, MOKE can be manifested in a) rotation of the polarization direction, b) introduction of ellipticity, and c) a change in the intensity of the reflected beam. In either case, the sensitivity of the detection methodology is of critical importance. By combining better optics and signal detection techniques, we have been able to improve the signal-to-noise ratio by many orders of magnitude. This study presents data demonstrating this improvement, and the various signal detection techniques that have made it possible.
Foraging herbivores must deal with plant characteristics that inhibit feeding, and they must avoid being eaten. Principally, toxins limit food intake, while predation risk alters how long animals are prepared to harvest resources. Each of these factors strongly affects how herbivores use food patches, and both constraints can pose immediate proximate costs and long-term consequences to fitness. Using a generalist mammalian herbivore, the common brushtail possum (Trichosurus vulpecula), our aim was to quantitatively compare the influence of plant toxin and predation risk on foraging decisions. We performed a titration experiment by offering animals a choice between non-toxic food at a risky patch, paired with food with one of five toxin concentrations at a safe patch. This allowed us to identify the tipping point, where the cost of toxin in the safe food patch was equivalent to the perceived predation risk in the alternative patch. At low toxin concentration, animals ate more from the safe than the risky patch. As toxin concentration increased at the safe patch, intake shifted until animals ate mainly from the risky patch. This shift was associated with behavioural changes: animals spent more time and fed longer at the risky patch, while vigilance increased at both risky and safe patches. Our results demonstrate that the variation in toxin concentration, which occurs intraspecifically among plants, can critically influence the relative cost of predation risk on foraging. We show that herbivores quantify, compare, and balance these two different but proximate costs, altering their foraging patterns in the process. This has potential ecological and evolutionary implications for the production of plant defense compounds in relation to spatial variation of predation risk to herbivores.

In the spring semester of 2013 we introduced photo intaglio printmaking into the print studio here at SUNY Oneonta. Incorporating an entirely new process into a studio requires much technical and conceptual troubleshooting, problem solving, trial and error. Art students Pat Capriglione and Chris Flagg have been collaborating with Professor Rhea Nowak to refine the technical process and explore the conceptual range of this exciting new process, which incorporates both digital and traditional technologies. This visual presentation will describe the process and display examples of successful photo intaglio prints.

Although spare, sweeping landscapes may appear “empty,” plains and prairies afford a rich, unique aesthetic experience – one of quiet sunrises and dramatic storms, mundane routines and hidden treasures, infinite horizons and omnipresent wind – that merits contemplation and celebration. This work draws on the researcher’s observations and experiences to explore topics such as place attachment and place identity, wildness and wilderness, travel and tourism, preservation and conservation, and expectations and acceptance in the context of parks, prairies, and wild, open places in the American West. In so doing, it invites readers to reconsider the meaning of “emptiness” and ask larger, deeper questions such as: How do people perceive wild landscapes? How do we shape places and how do places shape us? Above all, how can we experience the exhilarating effect known as Zen of the plains?

This presentation describes War Again, a large-scale performance piece premiered at Musrara Mix 13, an annual festival of new music, new media, and experimental arts held in Jerusalem, Israel. The work, produced by Dr. Joseph Pignato of the Music Department, along with Israeli composers Kiki Keren-Huss and Lior Pinsky, used technology to link over a dozen participants working in remote locations, including the U.S., Israel, Croatia, Ireland, and Germany. In addition to describing the piece, the presentation will use slides, video, and audio to 1)
illustrate the concepts behind the work; 2) describe the methodology and compositional processes; and 3) consider implications of technologically-mediated performances.

This presentation summarizes the implications of parasitological data for the food web of Otsego Lake, NY. A survey of the intestinal parasites of fishes of Otsego Lake and its tributaries (Cooperstown, NY) took place from 2008 to 2012. The initial goals of the survey were to add a parasitological component to the 40+ years of limnological and biological data available for the Lake, and to identify future host-parasite study systems. In total, 430 individual fish were collected by hook and line, seine, gill net, or ElectroFisher, and subsequently examined for intestinal parasites (and, in many cases, for parasites in other fish organs). Helminths encountered in the alimentary canal were prepared as whole mounts using conventional methods and subsequently examined with light microscopy. The survey included 27 fish species, including numerous economically important game fish species. Thirteen of the 27 fish species examined were infected with parasitic worms in the alimentary canal, including four species of acanthocephalans, five species of cestodes, two species of digenetic trematodes, and at least six species of nematodes. Among the intestinal parasitic worms in fish in Otsego Lake, the most prevalent and least host-specific is the acanthocephalan Leptorhynchoides thecatus. Additional species of parasitic worms were encountered as larvae in the body cavity, or the viscera, in at least 18 of the 27 fish species examined. Information on the life cycles of each of the parasitic worms that were encountered and identified to species is compiled with reference to current and historic data for the invertebrate and vertebrate fauna of Otsego Lake. Food-web pathways are mapped out in the context of the life cycles of the parasites encountered in this survey. This presentation illustrates the importance of invertebrates in maintaining the life cycles of the parasitic worms encountered, as well as the relative roles of the different fish hosts involved.

Project Buena Vista is a non-profit 501(c)3 organization, created in 2010 and centered around a 100-acre rain forest property at the edge of Manu National Park in Peru. Its mission is to preserve a tropical ecosystem populated by unique and rare species. Efforts towards this mission include maintenance and protection of the property itself, as well as medical outreach and educational programs. As it enters its third year of existence, Project Buena Vista continues to work towards its mission of rainforest conservation through community and educational involvement. This presentation will summarize past activities, current issues, and the future for Project Buena Vista.

Bryophytes are an integral component of forest ecosystems, forming extensive mats on logs, stumps, and rocks. The effect of different reproductive/dispersal strategies, however, on the distribution, diversity, abundance, and colonization rate of different species has not been well studied. In order to investigate the dispersal to and colonization of logs in northern hardwood/coniferous forests, a long-term study is being established at three properties maintained by the SUNY Oneonta Biological Field Station. The objective of this study was to select appropriate sites and collect baseline data for the long-term study. Three sites at each of three locations (nine sites total) were selected, based on an initial survey of bryophyte diversity and forest composition. The location of each site was marked using GPS coordinates. At each location, circular belt transects were established around a central point in half-meter increments to a total distance of 10 meters from the central point. Each 1/2-m transect was surveyed for presence of moss and liverwort patches. When a patch was located, a sample was collected for later identification, and the following information was recorded: location within the plot, substrate type, and presence/absence of sporophytes. Here we present data from the first three sites sampled. Combining material collected at all sites, a total of 741 bryophyte patches, representing 50
species (8 liverworts and 42 mosses) were found, sampled, and identified. Overall sporophyte production was highest at the Rum Hill site (44% of material collected), compared to Thayer Farm (35%) and Greenwoods Conservancy (31%). The most abundant species encountered at all sites also had the greatest sporophyte production. Consequently, a Pearson’s correlation found that sporophyte production was significantly correlated with species abundances (r=0.93, p=0.0000). This is an indication of greater dispersal ability and colonization rate of spore-producing species compared to those that rely more on asexual means of reproduction and dispersal. Seven of the most abundant species, however, showed low to no sporophyte production. These included five species that are known to proliferate by means of specialized asexual propagules. These results appear to support recent evidence which suggests that species that rely more on asexual propagules are equally capable of dispersal, at least within a 314-m² area, as those that produce high numbers of spores.

Many alpine bryophytes rely primarily, if not exclusively, on gametophytic fragments for reproduction. The dispersal role of these fragments, however, has not been adequately addressed. The objective of this study was to determine the extent to which fragments disperse on alpine summits and the reproductive viability of those fragments. Airborne diaspores were collected from early spring snow deposits in 2008, 2009, and 2010 from the summit of Mt. Marcy, and from summer propagule traps placed on the summits of Mt. Marcy and Algonquin Peak in 2009 and 2010. All fragments collected were identified to genus and/or species, when possible. To test for reproductive viability, fragments were grown in nutrient agar under ambient conditions for a period of 17 weeks. To detect the presence of spores, collected debris was surface sterilized and cultured on separate dishes containing nutrient agar. A total of 6,130 gametophytic fragments, representing 26 species, were collected. Collections were dominated by individual leaves (65%) and leafy branch fragments (32%). Up to 20% of fragments collected were found to be viable, with the majority of growth originating from stem tissue. In contrast, spore production was found to be uncommon to rare. Results provide evidence that Adirondack alpine bryophyte populations are maintained by the production and dissemination of gametophore fragments during both winter and summer months, with infrequent spore production events, perhaps episodically when weather conditions are most suitable. Data suggest that vegetative propagules may travel longer distances on these summits than originally predicted.

This study interrogates the development of inequality by race and place through an examination of local welfare-to-work service delivery. We will build on existing research on U.S. welfare-to-work programs in several ways. First, we focus on both rural and urban economic and social issues addressing a gap in the literature in which rural poverty remains understudied. Second, we incorporate the impact of race demographics in a nuanced way in reference to service delivery and place. Third, most of the sociological literature on welfare in the U.S. focuses on welfare participants coping with Temporary Assistance to Needy Families (TANF), while less research examines the challenges agencies and organizations face in implementing policies.

Effective instruction involves understanding students. Students’ motivational orientations and learning strategies are two factors that have consistently been found to be critical to college students’ academic achievement. The Motivated Strategies for Learning Questionnaire (MSLQ), developed by Pintrich et al. (1993), is designed to assess how college students learn and what motivates them. A recent meta-analytic review stated that MSLQ is a reasonably reliable measure of constructs, some of which exhibit meaningful relationships with college academic performance (Credé...
The MSLQ has been utilized extensively in various countries of the world, such as China, Germany, Greece, South Africa, and Thailand. Little is known, however, about its utility when applied to college students in India. The higher education system in India is diverse, and ranks third in the world behind China and the U.S. Over the years, student enrollment in higher education in India has been increasing significantly; at present it is approximately 11 million. This study examined the motivational orientations and learning strategies as measured by the MSLQ, and its relationship with academic performance amongst 115 college students in the U.S. and 104 college students in India. The MSLQ is based on the social cognitive view of motivation and self-regulated learning. According to this framework, students’ motivation is related to their ability to self-regulate their learning activities. The MSLQ is comprised of fifteen subscales divided into two sections: the motivation section and the learning strategies section. The motivational scales include a total of 31 items that assess students’ goals and value beliefs for a course, their beliefs about their skills to succeed in a course, and their anxiety about tests in a course. The learning strategies section comprises 50 questions pertaining to three general types of strategies: cognitive, metacognitive, and resource management. The fifteen subscales of the MSLQ assess student motivation pertaining to a course and the use of learning strategies within that course. The participants were instructed to rate each of the 81 self-report items on a 7-point Likert scale, from 1 (not at all true of me) to 7 (very true of me). As per the MSLQ scoring instructions, scoring of the negatively phrased items was reversed so that higher scores reflected a more positive motivational orientation and use of learning strategies. Scores for the individual subscales were computed by taking the mean of the items within that subscale. For the academic performance measure, course grades were converted to z-scores to enable meaningful comparisons between the two samples. The results indicate that the pattern of correlations among motivational beliefs and learning strategies for both the U.S. and India samples are similar and provides evidence for the utility of the MSLQ to college students in India.

Even heavily accented speech may be perfectly intelligible. Unintelligibility happens when the presence or absence of an aspect of pronunciation makes the listener think something else was said, or leaves the listener unable to figure out what was meant. This poster will present some aspects of English phonetics that might help listeners and speakers find accented speech more intelligible; it will also present some practical tips on other ways of improving comprehension of accented speech in the classroom environment.

The converse of Fermat’s Little Theorem is false due to the existence of pseudoprimes. This poster describes a construction that generates small sets of pseudoprimes of the form \(mq\) where \(q\) is a prime number and \(m>1\) is a natural number. The proof of this result relies on Fermat’s Little Theorem itself, and various consequences will also be illustrated.

How to create a positive attitude toward private brands is an increasingly heated topic in business, as well as in brand-management literature. This study was developed to primarily answer this question by proposing a persuasion mechanism in which customer perception is moderated by regulatory focus. Additionally, the study provides better insights into how regulatory focus moderates the effects of attribute framing on customer perception.
This research study utilized Q methodology to explore the perceptions of New York State K-12 public school teachers regarding the concept of being a “renegade teacher,” and the relationship to personal happiness and hope. The authors defined “renegades” as those individuals who persist in doing what one perceives as the right actions, regardless of potential repercussions from peers and/or administrators. Through the use of centroid factor analysis and theoretical rotation, two factors emerged: Overt Renegade and Quiet Renegade. The researchers found that the majority of the participants acted as an overt renegade and in the best interests of the students, despite the perceived risks and costs. In contrast, the quiet renegade, although sharing some qualities with the overt renegades, preferred to go unnoticed in their actions by others. In addition, the very act of taking action, whether overt or covert, had a direct influence on personal feelings of happiness and hope.

The fast pace of biological data generated nowadays calls for our biology students to be proficient in quantitative skills such as data analysis. This study examined how well undergraduate students can develop data analysis skills over the course of a single semester. Students taking either Ecology or a Conservation Biology course at eight different colleges completed two data analysis exercises, pre- and post- self-assessments of confidence in data analysis skills, a classroom discussion, and pre-/post-content assessments. The two data analysis exercises were adapted from the free online teaching modules available on the Network of Conservation Educators and Practitioners website (www.ncep.amnh.org). Between the first exercise (a demography problem involving palm harvests and parrots) and second exercise (calculating diversity indices for spider communities), a data analysis teaching intervention was administered in all classes. Instructional and assessment materials were created and validated by 24 conservation educators, led by the Center for Biodiversity and Conservation at the American Museum of Natural History. Results show that students scored significantly higher on post-content assessments for both exercises (N1=207 students, N2=199, P<0.01 for both). We also found significant increases in student self-assessment of confidence in data analysis skills (N=87); however, when evaluated at the level of different skill dimensions, while students’ ability to represent and interpret data improved between exercises (N=257, P < 0.01), the ability to draw conclusions trended to improvement, but was not significantly greater with the more intensive intervention. Surprisingly, the ability to carry out complete calculations declined overall on the second exercise (P<0.01), although the lowest-performing groups did make the greater gains. While our study demonstrates that direct instruction in data analysis does improve student performance overall, there is a disconnect between students’ self-assessment of their data analysis skills and their actual ability. This indicates that some aspects of data analysis, such as drawing conclusions, may require different teaching intervention approaches.

In teaching a course like Sales and Sales Management, it is important for students to be able to grasp the relationship that exists between all of the organizational components that are necessary for a sales program to be successful. An illustration of the type shown here can be helpful in facilitating an understanding of the various components that need to work together in a well-coordinated way to the benefit of everyone concerned. There is no guarantee that even a well-designed and clearly communicated sales plan can be carried out successfully. Well-coordinated organizational support is essential at every level. Cutting corners in any respect can undermine the entire program. Good implementation requires that the...
members of the salesforce have both the ability and the desire to meet organizational expectations. This requires three additional categories of managerial action. First, managers must recruit and select salespeople who have the aptitude, interests, and motivation to be able to carry out the activities that are involved in the job. Second, management must provide appropriate kinds and amounts of training to ensure that the salespeople will have the knowledge and skills that are necessary for them to do their jobs. Finally, management must design an attractive package of compensation and other rewards that will motivate the salesforce to expend the necessary effort to achieve top performance.

Eastlands Nairobi has a rich history and heritage that has often gone unrecognized in Kenya. It was the first urban home for Africans in colonial Kenya, and later was home to much of the lower and middle classes. Its status as the home of Sheng, the center of Matatu culture, contemporary and veteran musicians, sports icons, many Kenyan politicians and pop culture, is rapidly being lost as its history is being forgotten. Devolved government in the face of the speed with which urban centers, particularly Nairobi, are growing and transforming offers a particular opportunity, as there is a need for communities, and local and national governments to collaborate in the documentation and promotion of this history and its importance, as our environment and architecture changes and population needs create new needs, spaces and relations. If embraced, this effort (to document) has the potential not only to reclaim marginal spaces such as those that are rapidly deteriorating in Bahati, Jerusalem, Jericho, Kaloleni and elsewhere, but also to put the constitution to the test of interpretation and application as marginalized populations – individuals, groups and communities – are invited to participate in and actualize this initiative.

Zebra mussels invaded New York State shortly after being found in the Great Lakes in the 1980s. In 2007, invasive zebra mussels were found in Otsego Lake. From 2007 to 2008, few mussels were found; however, in 2013, the average density of Zebra mussels attached on rocks in Otsego Lake has significantly increased, to 5,420 individuals per square meter (N=10, standard deviation=4,903). The total biomass (dry weight) is 819 grams per square meter (N=10, standard deviation=643). Zebra mussels have become significant stressors to the ecosystem of Otsego Lake, due to their dominance in the benthic community. Perhaps more importantly, Otsego Lake lies at the headwaters of the Susquehanna River, whose drainage basin makes up 43 percent of the total drainage to Chesapeake Bay. There are currently no quantitative data available on their abundance and distribution in the Susquehanna River, despite their importance to the Chesapeake Bay ecosystem; therefore, a systematic investigation of infestation status of invasive mussels for the entire Susquehanna River basin is needed.

Nutrient-rich run-offs are known to cause eutrophication in water bodies. In urban and suburban areas, the nutrients often come from non-point sources, such as lawns and paved surfaces. We investigated the possible impact of local lawn fertilizer ordinances that ban conventional inorganic nitrogen (N) and phosphorus (P) fertilizers during the rainy season. Our results indicate that conventional fertilizer containing both N and P is indeed most likely to contribute to N & P runoff and decreased phytoplankton diversity. Iron run-off from a P-free conventional fertilizer with added iron (Fe) was significantly higher than others; this, combined with its high N runoff, may potentially promote unwanted algal growth, especially when it enters the aquatic environment.
Tree data structure is commonly used to encode complex data and their relationships in different problem domains, ranging from web mining and XML documents to bioinformatics and computer networks. The questions of what substructures are meaningful, and how to mine those substructures from the trees, has inspired much interest in the data mining research community. In this project, we attempt to design an algorithm to mine frequent degree-2 embedded sub-trees from the rooted ordered labeled trees for which no existing mining algorithms are currently effective. Specifically, we formulate the problem, define the equivalence class, analyze the rightmost pattern growing, describe a novel edit tree distance based subtree detection subroutine, and subsequently develop an *a priori*-based pseudo-polynomial time algorithm to solve the problem at hand.

Anger has not been in the forefront of research and theory development during the past century. Anger has been coined “the forgotten emotion,” mostly due to overlap and confusion with other constructs such as hostility, aggression and violence. Clinically, when individuals enter treatment with severe and problematic anger, it is often nested within an assessment of depression and/or anxiety-based issues. Unless there have been excessive-destructive behaviors as part of the presenting problem, whereby the criteria for a diagnosis of Intermittent Explosive Disorder is met, then individuals usually receive a diagnosis within the depression or anxiety spectrum. Trait anger, a relatively new construct describing someone with high proneness and frequency of angry mood, has emerged as a distinct entity, as researchers have attempted to measure it. Clinically, it is unclear whether the pervasive experience of angry mood is the core affective disorder, such as high trait anger, or whether angry mood belongs within the spectrum of either anxiety or depression. One would expect participants in a research study who are given an anger induction to experience an increase in state anger; the question is whether they would also experience an increase in sadness (a state measure of sadness) as a result of an anger induction, or perhaps experience higher vs. lower feelings in other state measures. Feeling states associated with other psychological constructs may also be activated with the sole experience of angry mood (without angry behaviors or angry verbal conflicts). This study examined whether participants responded to state measures differentially over time, following a Velsen mood induction for anger. Baseline measures of trait anger and depression were given to all participants prior to the intervention, to determine group placement for the experimental design. A 2(high-low anger) x 2(high-low depression) x 2(time) mixed-design ANOVA allowed examination of state measures: angry mood, sadness, dominance, dependency, and attribution style. From an initial sample of 306 participants recruited from undergraduate college psychology classes, 136 participants met criteria for high-low anger (upper/lower 30%) and high-low depression (upper/lower 30%). After assessing baseline pivot-scale ratings for five variables of interest, the participants received the mood induction for anger. Following a three-minute period of silence, participants completed post-intervention pivot scale ratings. Results comparing state pre-test to post-test measures following the anger induction indicated increased angry mood (time 1 anger mean=4.2, SD=2.19, time 2 anger mean=6.97, SD=2.11), F(1,129)=117.53, p<.001) and sadness (time 1 sadness mean=4.6, SD=1.94, time 2 sadness mean=5.6, SD=2.18), F(1,129)=17.98, p<.001) across time following the anger induction. Additionally, participants showed an increase in dominance across time, and an interaction effect showed that the low anger group increased in dominance at a higher rate across time when compared to the high anger group (upper 30% trait anger/time 1 dominance mean=5.0, SD=1.48, lower 30% trait anger/time 1 dominance mean=5.5, SD=1.51, upper 30% trait anger/time 2 dominance mean=4.8, SD=1.98, lower 30% trait anger/time 2 dominance mean=4.6, SD=2.01), F(1,129)=4.82, p=.03. Results showed no relationship between trait anger and changes in the state measure of dependency.