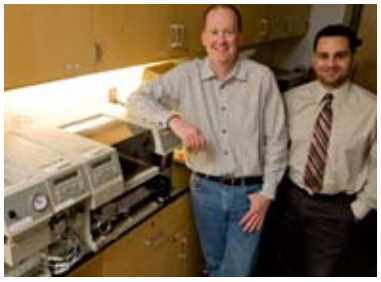
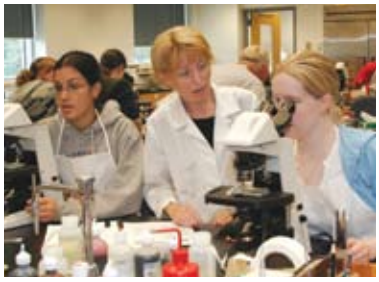
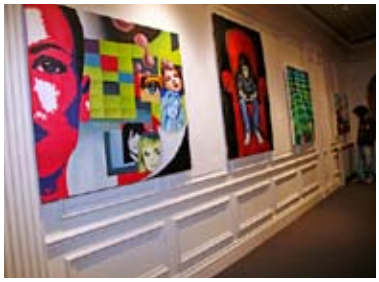
WORCESTER
State College

Celebration of Scholarship and Creativity





Worcester State College
April 29, 2009

The Best That Higher Education Has To Offer

Now, more than ever, it is important to recognize the excellence and creativity of our faculty and students. Our graduates face an uncertain and rapidly changing world. But one thing that will never change is our primary role as an institution of higher learning: faculty teaching students and passing on their passion for scholarship and creativity to new generations.

This second annual Celebration of Scholarship and Creativity highlights the scholarly and creative work faculty have engaged in–in many cases with students–during the 2008-2009 academic year. For both students and faculty, these experiences are the best that higher education has to offer–faculty pursuing scholarly interests, contributing to their disciplines, and students, working closely with a faculty member, learning how scholars and artists approach their work.

Through hands-on engagement in the pursuit of knowledge, students experience a deep transformative learning beyond what takes place in the classroom. By setting an example of serious engagement in academic and creative endeavors, faculty inspire their students to push beyond the ordinary and achieve their best.

Worcester State College is proud of the remarkable accomplishments of our faculty and students. We celebrate their successes with the 2009 Celebration of Scholarship and Creativity.

Maureen Shamgochian, Ph.D.
Interim Vice President
Academic Affairs

WORCESTER
State College

BIOLOGY

Y-27632 INHIBITS MELANOMA CANCER

BI 401 Class
Faculty Adviser: Brad A. Bryan, Ph.D.

As a lab project, BI 401 "Cancer Biology" students tested the effectiveness of a novel pharmacological therapeutic (Y-27632) in inhibiting melanoma cancer. In cultured melanoma cells, Y-27632 disrupted cell morphology and led to a decrease in cell survival. Moreover, Y-27632 treatment of mice burdened with melanoma tumors resulted in a significant reduction in tumor volume compared to control mice. These data suggest that Y-27632 may be an effective treatment for melanoma cancers.

RHO-KINASE INHIBITION OF BLOOD VESSEL FORMATION

Emily Dennstedt and Jean-Paul Campaigniac
Faculty Adviser: Brad A. Bryan, Ph.D.

Therapeutics that block blood vessel formation in tumors have been shown to promote tumor shrinkage and increased patient survival; therefore, development of novel blood vessel inhibitors may lead to improved treatment of cancers. Our data indicate that inhibition of ROCK1 & 2 proteins in endothelial cells strongly disrupts capillary formation through disorganization of the cellular cytoskeleton, suggesting that these proteins could be excellent targets for cancer treatment.

ANNOTATION OF THE DOT CHROMOSOME OF DROSOPHILA ERECTA

Christopher Doty and Alexis Smith
Faculty Adviser: Daron Barnard, Ph.D.

The purpose of this research project was to annotate a portion of genetic sequence from the Drosophila erecta (a species of fruit fly) dot chromosome to determine location and putative function of genes in this segment. While gene prediction programs such as Genescan and Twinscan do exist that can and were used to establish a rough outline of possible gene locations, the accuracy of this software is generally rather poor. Gene alignment programs such as BLAST were thus used to compile supporting evidence for the presence of specific genes in D.erecta based on homology with regions in Drosophila melanogaster.

POLLEN OF THE HOLOCENE FROM POUTWATER POND BOG, HOLDEN, MASS.

Jennifer Marino
Faculty Advisers: Peter Bradley, Ph.D., and Adrienne Smyth, M.S.

Pollen from a core sampling of the peat land surrounding Poutwater Pond in Holden, Mass., was isolated, identified, and counted for quantitative analysis using a scanning electron microscope. The peat has been carbon dated and the abundance of different pollen has been determined at different depths. This study has shown changes in vegetation at this site since the end of the last Ice Age.

SUPPRESSION OF SCHISTOSOME GLUCOSE TRANSPORTER PROTEIN (SGTP) GENES USING RNA INTERFERENCE

David Ndegwa
Faculty Adviser: John Goodchild, Ph.D.

Schistosomiasis is a chronic disease caused by parasitic helminths affecting more than 200 million people worldwide. During its life cycle in the mammalian host, schistosomes express two glucose transporters, SGTP1 and SGTP4. All life stages express SGTP1, whereas SGTP4 is expressed in the intravascular life stages only, an indicator of their importance in the parasite development and hence a potential target for intervention. We used RNA interference (RNAi) to suppress the expression of the schistosome glucose transporter (SGTP) genes in S.mansoni. We have shown that schistosomes are exceedingly susceptible to RNAi at both transcriptional and translational levels. A suppression of messenger RNA (mRNA) expression between 80% and 99% was achieved for both genes. A 60% protein decrease was observed with SGTP4 after 7 days.

ANTIBIOTIC RESISTANCE PROPERTIES OF FECAL BACTERIA ISOLATED FROM CANADIAN GEESE
Reagan Savas
Faculty Adviser: Brad A. Bryan, Ph.D.
While nosocomial (hospital acquired) infections are a prominent source of bacterial antibiotic resistance, environmental sources of antibiotic resistance may be increasing because of growing human use of antibiotics that accumulate in our water supply. Our data indicate that a large percentage of bacteria growing in the intestinal track of Canadian geese display resistance to at least one or more antibiotics, suggesting that geese may be a vector by which antibiotic resistance is harbored and transmitted.

BUSINESS ADMINISTRATION AND ECONOMICS

MONEY*SKILL* FINANCIAL LITERACY OUTREACH
Dennis Brosnan
Faculty Adviser: Jay Mahoney, Ph.D.
Financial literacy is not a priority in the U.S. Only seven states require high school students to complete a personal finance course to graduate and a 2006 Jump$tart personal finance survey found 62% of school age Americans failed a basic knowledge test. The mission for this project was to provide an educational opportunity for students to aid them in making informed financial decisions. MoneySKILL is an online financial literacy interactive program aimed at high school students. We created an interactive presentation outlining the program benefits and explaining to teachers how to integrate the program into their own curriculum.

NEW PRODUCT INNOVATION PROJECT
Daniel Gallupe and Christopher Croke
Faculty Adviser: Jay Mahoney, Ph.D.
We partnered with Pusateri Architectural to help in new product development and marketing. The owner had an idea for a product which would conceal a rifle safe and add visual appeal to a home. He believed that there was no other product like it on the market. We conducted a SWOT analysis and market potential analysis and assisted the entrepreneur in the design of a prototype. We also helped negotiate for a CAD design, educated him on the need for a product mix portfolio and taught him the essentials of break-even analysis as it applies to both production and marketing.

YOUTH MENTORING: HOCKEY + SCHOOL = SUCCESS
William Knauber
Faculty Adviser: Jay Mahoney, Ph.D.
We ran an on-and-off ice clinic for kids, coaches, and parents, promoting the importance of education while pursuing athletics. We delivered a 90-minute experience including 60 minutes of instructional skills and drills, and 30 minutes of a highly interactive presentation entitled "School + Hockey = Success." Connecting math to lining up slap shots or cutting the angle of attack, social studies to diversity of languages, countries of origin, or cultures of hockey players, and highlighting examples of former players' successful non-hockey endeavors, we tried to gently but firmly debunk the myth that athletes don't need to be educated and smart.

LOCAL RESTAURANT *SWOT* ANALYSIS AND MARKETING PUSH
Matt Pagourgis
Faculty Adviser: Jay Mahoney, Ph.D.
SIFE performed a SWOT analysis for Westside BBQ in order to attract a larger college-aged clientele. We conducted interviews and surveys to identify strengths and weaknesses, considered implementation, and made recommendations. We proposed a college special, enhanced signage, and delivery service. Westside created the college special while we created a Facebook group for the Westside, sent out invitations to join the group, and advertised the college special through this mechanism and others. With the success of the college special, Westside went on to install new signage, and has also initiated a delivery service.

STUDENT PERCEPTIONS OF MARKET FAIRNESS

Elizabeth Wark, Ph.D., and Janice Yee, Ph.D.

Rational behavior, self interest, and incentives are some of the simple assumptions found in many introductory economics courses. Incentives impact the rational behavior of self-interested individuals and the result is the price and quantity in the market. Is this fair? Given the recurring public protests against market outcomes globally and locally, the answer may be no for many individuals. Could a semester in economics with its emphasis on the objectivity of markets and efficient outcomes change such opinions? We surveyed over 300 students in Introduction to Microeconomics and Macroeconomics in order to answer this question. We found that in some cases, student opinions regarding market fairness did change, but this very much depended upon whether students felt market-based outcomes were circumvented or enhanced. Early conclusions suggest instructors and topics can influence student opinions.

SOCIAL CAPITAL AND ITS IMPLICATIONS

Janice Yee, Ph.D., and Julie Burdett

Popularly introduced by Putnam (2000) in his work *Bowling Alone*, the concept of social capital continues to be one that has drawn both criticism and intrigue into its possible impacts for community development. Social capital is believed to be an important concept in strengthening community cohesion and cooperation, and therefore instrumental in effectively impacting in a positive manner, policy aims that attempt to draw community members together to move towards a common goal. Formal and informal ties to community members can foster community connections, but the degree to which such interactions impact social capital depend much upon the community in question as well as its composition. We surveyed approximately 200 Worcester State students to better understand their perspectives on social capital and how that might impact social capital formation in Worcester in the years to come.

CHEMISTRY

GREENER SEPARATION OF DYES USING AQUEOUS BIPHASIC SYSTEMS

Keith Dusoe

Faculty Adviser: Meghna Dilip, Ph.D.

Aqueous Biphasic Systems (ABSs) are a safer and "green" alternative to traditional solvent based extraction methods for environmental remediation since they obviate the need for volatile organic solvents that are often times flammable and carcinogenic. Composed largely of water and non-toxic, non-volatile, and non-flammable components, an ABS allows for rapid extraction of hazardous chemicals without use of auxiliary substances. In this work, the effective partitioning of gentian violet (a known carcinogenic dye) was demonstrated in both a polymer-salt ABS as well as salt-salt ABS. It was shown that the nature of kosmotropic salt, ionic liquid/ polyethylene glycol concentration, and pH played a major role in the partitioning of the dyes.

REGIOCHEMISTRY OF RING FORMATION AS A FUNCTION OF RING SIZE

Hawa Fall and Vivian Nguyen

Faculty Adviser: John Goodchild, Ph.D.

A challenge that often faces the organic chemist is to optimize yields in a reaction where multiple products are possible. In this study, computer modeling is used to help predict the most stable product in such a reaction. The purpose of the study is to investigate ring formation caused by the attack of a nucleophile on a molecule that can cyclize to give products with different sized rings. Gaussian 03 was implemented to calculate the energy of each of the six products formed during the reaction with the use of Hart-Fock (HF) at the 6-31++G (d,p) basis set.

THEORETICAL EXPLANATION OF SELF-CONSISTENT FIELD APPROXIMATION

Richard Holy

Analyzing molecules and molecular interactions using ab intio methods requires the use of computers because of the complexity of the mathematical algorithms that are the subject of this project. Even the most simple of chemical structures such as a molecule of water takes a large amount of computing power and time to model. With use of "approximations," we can reduce the amount of computing power and time necessary to use model chemistries at the cost accuracy. The Hartree-Fock Self-Consistent Field method is an approximation that allows one to calculate the properties of a molecule by "averaging" the potential field that an electron may exist in at a point in time.

ATOM ECONOMY ESSAY

Margaret Kerr, Ph.D.

This essay about the green chemistry topic "atom economy" was published by Prentice Hall in the 12th edition of *Chemistry for Changing Times*, a textbook for non-science majors. Atom economy is a fundamental part of green chemistry and describes how many atoms that are reacted end up in the desired product. Atoms that are not part of the desired product typically are disposed of as waste. To minimize the production of waste, it is important when designing new reactions to consider the atom economics of the reaction. The essay consists of descriptive passages and exercises for students. This popular textbook typically reaches about 100,000 students per year.

FLAVONES IN TEA

Lukasz Kicilinski

Faculty Adviser: John Goodchild, Ph.D.

Flavones are a family of compounds that occur widely in plants. There is evidence that dietary flavones provide health benefits such as protection against cancer. This might be because of the ability of flavones to react with oxidizing agents that damage cells. It has been suggested that green tea protects against cancer in this way and is more effective than black tea. We decided to compare the flavone content of green and black teas using thin layer chromatography.

MODELING THE EFFECT OF RING SIZE ON THE STABILITY OF A METAL-CHELATING NITROGEN LIGAND

Cooper King

Faculty Adviser: Eihab Jaber, Ph.D.

Metal-ligand supramolecular systems have been of interest in new age medicine for removing toxic metals from the body. One important question is how to design the molecules that will selectively bond to heavier, harmful metals. DPA-2 (N,N'-di-2-picolylethylenediamine) and DPA-3 (N,N'-di-2-picolyl-1,3-propanediamine) are polydentate chelating molecules with both ring- and linear-integrated nitrogen donors. Ligand-metal stability with several metals when changing from a 5-membered ring in DPA-2 to 6-membered in DPA-3 was tested. Accuracy was compared among traditional low-level molecular mechanics, scaled to ab-initio Hartree-Fock, and density functional theory B3LYP, and possible partitioning methods were attempted.

RELATIVE STABILITY OF A TRIGONAL BIPYRAMIDAL PHOSPHOROUS VIA ELECTRONEGATIVITY SELECTION

Ryan R. Knihtlla

Faculty Adviser: Eihab Jaber, Ph.D.

Understanding binding affinity and binding stoichiometry between molecules allows for a unique look into ligand binding dynamics by way of selectivity of the molecules. Ligand binding interactions are frequently coupled to conformational changes in the molecules via electronegativity selection. Computational chemistry allows for a useful method to explore these types of ligand binding interactions and their respective affinities. This work explores these types of ligand binding interactions through the study of Tetrahalide(fluoro) phosphorane molecules by removing the equatorial fluorine atoms and replacing them with less electronegative, using single point energy calculations via ab initio methods with the use of GAUSSIAN 03.

DESIGN OF A CLUSTERED COMPUTING CONFIGURATION FOR QUANTUM CHEMICAL SIMULATIONS

Jason Kost

Faculty Adviser: Eihab Jaber, Ph.D.

High performance computing clusters provide an inexpensive solution for the undergraduate research laboratory to obtain the computational power necessary for the execution of complex quantum chemical simulations. Utilizing readily available commodity computer hardware academically licensable software, these clusters may be assembled with little to no financial investment. In this project, a cluster comprised of 18 single processor desktops with an IBM server acting as the head node was utilized. All systems have installed the open source batch queuing tool Torque, GAMESS quantum chemical computational software, and the Red Hat Enterprise 5 Linux operating system. This setup was then benchmarked in relation to a number of systems in order to quantify any computational gains.

A THEORETICAL INVESTIGATION ON THE FORMATION OF CARBON MONOXIDE POLYMERIC CHAINS

Christina Lovell

Faculty Adviser: Eihab Jaber, Ph.D.

Carbon monoxide molecules have been known to form polymeric-like chains that consist of several molecules in length, with relative stabilities. Understanding the stability of these molecules can help to predict how easily these polymeric forms of carbon monoxide can exist in the atmosphere. As a result, this may provide further information about both the life span and the toxicity of different conformations of these polymeric-like chains of carbon monoxide. With the use of ab initio and density functional theories, we have been able predict the stability of these molecules, by calculating their respective energies and monitoring their energy differences as a function of polyketone length.

COMPUTATIONAL ANALYSIS OF THE CONFIRMATION OF HEME IN HEMOGLOBIN

Ericca Lucht

Faculty Adviser: Jeffry Nichols, Ph.D.

Hemoglobin is a metalloprotien that transports oxygen in the body. Analysis of the crystalline structure of Hemoglobin through x-ray diffraction shows that the porphryn ring of the Heme group is contorted. In this study the effects of the surrounding amino acids on the geometry of the porphryn ring were compared to the ab initio planar ring. Gaussian 03 was used to calculate single point energies at the DFT-B3LYP levels on both models with a 6-311G(d,p) basis set.

COMPUTATIONAL INVESTIGATION OF CATALYTIC OZONE DESTRUCTION BY HYDROXYL RADICAL

Wyatt G. Merrill and Kevin Sorge

Faculty Adviser: Eihab Jaber, Ph.D.

The hydroxyl radical is known to play a key role in the destruction of ozone in the stratosphere through a cycle that is capable of perpetuating itself. This destructive cycle is carried out in a two step reaction in which the hydroxyl radical catalyzes the creation of diatomic oxygen from ozone and singlet oxygen. Our findings suggest that the enthalpies for this cycle computed at lower levels of ab initio methods and basis sets compare well with experimental findings. We model this cycle via a computational method with the use of GAUSSIAN 03.

ENTHALPIC CONTRIBUTION TO THE STABILIZATION OF NICKEL ION COMPLEXES

Lucas Miller

Faculty Adviser: Eihab Jaber, Ph.D.

Modern chemists are concerned with the effectiveness of metal ion selection as it is useful in the fields of pharmacology, nanotechnology, and environmental science. For example, the proper selection and retention of a metal ion could allow for more efficient transport to a specific part of the body. Bidentate chelating ligands of a metal ion are known to result in a more stable molecule when compared with monodentate ligands on the same metal ion. In this work, we examine the enthalpic contribution to the stabilization of the metal ion complexes as the molecule becomes more macrocyclic.

SETTING A CHEMICAL TRAP

Taral Naik

Faculty Adviser: John Goodchild, Ph.D.

Organic chemistry is largely about making new molecules, particularly ones that may be useful (such as drugs) or may help us understand nature a little better. Chemists are always seeking new ways to help them construct complex molecules more easily. We are working on a way to set a chemical trap that will be irresistible for some simple molecules. On falling into the trap, they will be converted into molecules that are more complex and more interesting.

THERMODYNAMICS OF THE BIFURCATED HYDROGEN BONDING FORMATIONS OF GUANINE-TETRAMERS, GUANINE-PENTAMERS, AND GUANINE-HEXAMERS

Margaret T. Nguyen

Faculty Adviser: Eihab Jaber, Ph.D.

Telomeres are structures at the ends of chromosomes (endcaps) that are guanine-rich sequences that protect the ends from destruction. These sequences contain domains of G-tetramers in which G-G pairs are held together by intermolecular hydrogen bonding. It is believed that the hydrogen bonding of these G-G pairs occurs by bifurcated interactions in the absence of monovalent cations. Cooperative interactions are thought to play a key role in the stabilization of these G-tetramers. In this work, the enthalpic cooperative contribution to the stabilization of these G-G pairs by bifurcated hydrogen bonding was evaluated by ab initio methods and suggests that they play a pivotal role in the stabilization of these G-tetramers.

COMPUTATIONAL STUDIES OF BIODIESEL USING POTENTIAL ENERGY MAPPING OF METAL CATALYZED ESTERIFICATION

Jessica Sargent and Adham Chebbani

Faculty Adviser: Margaret Kerr, Ph.D.

Usually, biodiesel is produced via a homogenous Brønsted catalyst. However, there are disadvantages that complicate the purification: purity of the reactants, creation of a caustic waste stream, and formation of soap. This process isn't as efficient with waste oil because of the high free fatty acid content. Hopefully, waste oil can be used to make soap followed by an acid workup to form biodiesel. The free fatty acids in waste vegetable oil can be reacted with a metal halide catalyst to form methyl ester. Computational results using Gaussian 03 were compared with results taken from experimental values to determine the catalyst's viability.

COMPUTATIONAL STUDIES OF STRATOSPHERIC FORMATION OF BROMINE NITRATE

Patrick John Sargent

Faculty Adviser: Eihab Jaber, Ph.D.

With the use of computational methods we can provide a unique undergraduate laboratory activity for the study of a complex stratospheric chemistry reaction. The compound of interest for this study is Bromine Nitrate (BrONO2), which researchers believe to undergo key reactions with ozone during the dark hours of the night. The reactivity of BrONO2 without the need for sunlight allows it to be a key component in ozone destruction. To investigate this reaction, our calculations were conducted at the density functional theory (DFT) at the functional of B3LYP with the 6-311+G(2df) basis in order to calculate the thermodynamic properties of BrONO2 upon reaction with atomic Br.

HOW GREEN ARE "GREEN" CLEANERS?

Bradford Spencer

Faculty Adviser: Meghna Dilip, Ph.D.

Green household cleaners are ubiquitous in the market today, but how green is "green?" Biological Oxygen Demand, Chemical Oxygen Demand, and pH tests were conducted on several readily available household cleaners, in order to validate their relative "green"ness.

COMMUNICATION

ESPERANZA Y SU EXITO (HOPE AND YOUR SUCCESS)
Julian Berrian, M.F.A., and Alta Carroll, Ph.D.
Student interns produce "Esperanza y Su Exito" (Hope and Your Success), sponsored by and edited in the Center for Community Media. Targeting Worcester County's Hispanic community of over 62,000 and hosted by Latina activist Esperanza Donovan-Pendzic, the show features segments on health, parenting, cooking, money management, cultural arts/activities, and information on city, county, and state governmental services. Thirty-minute episodes are shot on digital videotape, on location and in the campus TV Studio, in collaboration with Worcester Community Connections. Current student interns include Jonathan Alexander, Zachary Brackman, Stephen Minor, Brian Robinson, and Stephanie Parretti, with volunteer assistance from Laura McGill.

INDYMEDIA: THE GLOBAL TURN IN THE ALTERNATIVE MEDIA MOVEMENT
Carlos Fontes, Ph.D.
This piece is a chapter in a book entitled *Understanding Community Media,* which will be published by Sage in September 2009. Based on research the author carried out for the last five years, the chapter argues that alternative media need to be defined as a set of common practices reaching from the level of small groups to the global sphere and theorizes that the emergence of the Indymedia Network represents a new global stage in the development of the Alternative Media Movement.

MASSACHUSETTS BIOMEDICAL INITIATIVES (MBIDEAS) PHOTOGRAPHY EXHIBIT
Donald Bullens, M.Ed.
Donald Bullens has nine photographs on permanent display at Massachusetts Biomedical Initiatives and at MBI/WPI Gateway Park. The photographs are part of his nature/wildlife portfolio. The images are printed in large format (2' x 3') and mounted on foam board. All photographs were shot using a Cannon EOS 40D camera, and edited with ADOBE LIGHTROOM and PHOTOSHOP CS3. Several of these photographs are on exhibit at Dees Designs and the Redbone Gallery in Islamorada, Florida.

UNFORGETTABLE REGGAE
Donald Bullens, M.Ed.
A concert photograph of Bob Marley has been on display at the "Unforgettable Reggae" exhibit in the Alba Adriatic on the Adriatic Rivera of Abruzzi, Italy. The exhibit contains photographic and artistic material, portraits, and illustrations from all over the world.

GENERATION Y STUDENTS SEEK TO FIND TRUTH IN 2008 PRESIDENTIAL CAMPAIGN MEDIA COVERAGE
Julie Frechette, Ph.D.
In fall 2008, Media Criticism students worked with the Center for Community Media to present the college-wide forum: "Informed Voting During Fiscally Uncertain Times: Generation Y Students Seek to Find Truth in 2008 Presidential Campaign Media Coverage." In addition to writing and delivering speeches at a political forum before the November election, students wrote media press releases, gave a radio interview on the WTAG Jordan Levy Radio Show, and received press coverage in a *Telegram and Gazette* article on October 19, 2008.

MULTIPLE LITERACIES FOR THE INTERNET AGE
Julie Frechette, Ph.D.
This scholarship was presented at the Seventh Annual Northeast Media Literacy Conference at the University of Connecticut. With growing interest in confronting the challenges presented by the emergence of new information technologies in schools and other learning environments, Frechette devoted serious thought to the multi-dimensional opportunities and obstacles presented by digital technology. By addressing pedagogical questions centered on the integration of new telecommunications technology in the classroom, she outlined how multiple literacies can enable educators to develop curricula that encourage students to judge the validity and worth of Internet content as they strive to become critically autonomous in a technological world.

BRYCE/OXBOW
LONE PINE/MONADNOCK
Suzanne Gainer, M.F.A.
Bryce/Oxbow is a digital photographic composite of two barren trees. The tree on the left was photographed at Bryce Canyon National Park, Utah, the one on the right at OxBow National Wildlife Refuge in Harvard, Mass. Lone Pine/Monadnock is a digital photographic composite of rock formations from the Southwest and Northeast regions of the United States. The rocks on the left were photographed in the Alabama Hills area of Lone Pine, Calif. On the right are the granite formations from the summit of Mt. Monadnock near Jaffrey, NH. The photographs are part of a series of works that compare the terrain, ecology, and plant forms from various geographic locations around the globe.

COMMUNICATION SCIENCES AND DISORDERS

INDIVIDUAL DIFFERENCES IN UNDERLYING ORAL LANGUAGE COMPETENCIES ASSOCIATED WITH LEARNING TO READ: IMPLICATIONS FOR INTERVENTION
Linda S. Larrivee, Ph.D.
This chapter, co-authored with E.S. Maloney, M. S., is included in a book currently in press by A. Weiss (Ed.), titled: Perspectives on Individual Differences Affecting Therapeutic Change in Communication Disorders., published by Psychology Press. The chapter examines several aspects of oral language and how deficits in these areas relate to deficits in reading written language. Implications for individualized intervention are discussed. Many children with primary language impairments (LI) have difficulty learning to read. To enhance the effectiveness of the treatment they provide, speech-language pathologists (SLPs) can identify children's specific areas of linguistic and metalinguistic weaknesses so that they can impact both oral and written language development.

EFFECT OF CO-OCCURRING INDIRECT ARTICULATION WITH DIRECT FLUENCY INTERVENTION
Kenneth S. Melnick, Ph.D.
Phonological and stuttering disorders frequently co-occur. When they do, it is difficult to decide how to treat them because treating the phonology directly may exacerbate the stuttering. One method of treating stuttering is through a combined fluency shaping and modification approach. When the two co-occur, they may be treated with an indirect approach to target the phonological disorder and a direct approach to treat the stuttering disorder. Rationale for using an indirect phonological method is because direct methods place too much pressure on the articulators, thereby increasing risk of exacerbating the fluency disorder.

MENTAL MEASUREMENT YEARBOOK REVIEWS
Roger L. Towne, Ph.D.
Reviews of the Clinical Assessment of Articulation and Phonology and the Hines Functional Dysphagia Scale were published in the seventeenth edition of the *Mental Measurements Yearbook.*

DIFFERENCE OR DISORDER? MONITORING ENGLISH PHONOLOGY ACQUISITION AFTER INTERNATIONAL ADOPTION
Linda Larrivee, Ph.D., Susanna Meyer Ph.D., Katie Grady, M.S., Olivia Howley, M.S., and Emily Soltano, Ph.D.
Second first language learners are at risk for language disorders. Assessment procedures are limited for internationally adopted (IA) children. They cannot be assessed using the same assessment procedures as bilingual children. This longitudinal study investigated phonological acquisition of one native Tagalog speaker. Language samples were analyzed for phoneme accuracy and phonological patterns. The participant did not master phonemes according to chronological age and birth language. He produced idiosyncratic patterns within phonemes and phonological patterns. Results suggest the participant has a phonological disorder rather than a difference. This assessment procedure can guide speech-language pathologists in diagnosing phonological disorders in IA children.

NUTRITION AND HEARING SENSITIVITY

Kolbe Heroux

Faculty Adviser: Susanna Meyer, Ph.D.

It is general knowledge that a healthy diet is needed for proper whole body wellness. Recent research reveals how diet impacts hearing. Proper nutrients have a positive impact, while a deficient diet has a negative impact on hearing. The purpose of the research was to determine a correlation between nutrition and hearing loss in college-aged participants. All participants received a pure-tone threshold test, and completed a survey about eating habits and noise exposure. The survey and the hearing test results will be presented. These results have implications for nutrition education to promote hearing health.

COMPUTER SCIENCE

AUTONOMOUS WHEELCHAIR

Brian Tinger

Faculty Adviser: Karl R. Wurst, Ph.D.

The goal of this project is to convert an electric wheelchair to robotic control. By equipping the wheelchair with a robotic controller, I was able to use a 4-channel radio to control the wheelchair's drive forward and backward as well as steering left and right. After initial user control was achieved, the wheelchair's drive system was set to be controlled autonomously through a combination of microcontrollers equipped with a driving algorithm that reads positioning sensors attached to the wheelchair chassis.

APPLYING THE LINGUISTIC CATEGORY MODEL

Andrew Gallant

Faculty Adviser: Karl R. Wurst, Ph.D., and Hansun To, Ph.D.

The Linguistic Category Model (LCM) is a model about the psychological properties of interpersonal language, which is used to classify verbs and adjectives that represent actions and states between people. The goal of this project was to develop an online interface such that the user can apply the LCM to any number of documents. The online interface makes use of keyboard shortcuts, AJAX, and a relational database to help speed up the process of applying the LCM, and consequently retrieve results more efficiently.

DESIGNING RELATIONAL DATABASES FOR REAL DATASETS

Michael Folding

Faculty Adviser: Elena Braynova, Ph.D.

In this work we analyze an Excel database for water quality of selected local Worcester water bodies and design a relational database for it. Conceptual design of the database is given in ER model. Relational tables are constructed and initialized by data. The tables' relationships are defined by appropriate primary and foreign key constraints. We run SQL queries on the constructed database and study their efficiency.

EDUCATION

THE ROLE OF IDENTITY IN HIGH SCHOOL PEER RELATIONSHIPS

Kristine Miele

Faculty Adviser: Diane Tighe Cooke, Ph.D.

This study examines the relationship between a student's identity formation style and bullying and victimization within a high school setting. Students at the beginning stages of identity development approach identity formation in one of three ways: informational, normative, or diffuse. Results suggest that students who directly bully others are more likely to approach their identity formation from a diffuse style as opposed to a normative approach to identity formation, while victims did not tend to approach their own identity formation in one specific way. Further, specific areas of identity distress are examined for both bullies and victims.

AN INVESTIGATION OF THE FACETS OF PROFESSIONAL IDENTITY OF SCHOOL PSYCHOLOGY GRADUATE STUDENTS

Kristine Miele and Nancy Caporello

Faculty Adviser: Diane Tighe Cooke, Ph.D.

Students of School Psychology begin to consider their professional role early in the course of training. Experiences such as practicum and internship allow students to better define how they perceive their roles within their professions. This study explored the developing professional identity of school psychology graduate students and attempted to ascertain how school psychology students view their future roles as professionals. In particular, this study investigated whether future school psychologists view themselves as educators, psychologists, or a combination of the two professional identities. Geographical differences were also explored.

FAILURE OF EDUCATIONAL REFORM IN AMERICAN PUBLIC SCHOOLS

Patrick J. O'Connor, Ed.D.

My central point is a discussion of how our ambitious national effort to establish Standards Based Reform in American Public Schools has resulted in two very different educational responses: one, a very powerful and promising idea, which is Authentic Standards Based Reform; and the other, a more narrow, utilitarian, technical focus on testing and test preparation. This is what I refer to as the Evil Twin of Standards Based Reform. Essentially, I argue that teaching that focuses on getting kids to score higher - rather than to learn more - makes a mockery of our noble profession.

AN EFFECTIVE DATA-BASED DECISION MAKING SYSTEM FOR STUDENTS WITH SIGNIFICANT DISABILITIES

Deborah A. Tyler

Faculty Adviser: Sue Fan Foo, Ed.D.

The challenges presented by students with significant disabilities require a precise data collection system that provides care givers/educators the feedback necessary to maintain individually tailored programs. This poster presentation will present a currently available data-based system. Some student's academic performance charts will be shown to demonstrate how the data was used in programmatic decision-making.

HEALTH SCIENCES

THIS IS PUBLIC HEALTH

Lynn Bloomberg, Dr. P.H., Nancy Brewer, Ph.D., JoAnne Maynard, Ph.D., Helena Semerjian, M.Ed., and Amy Ebbeson, M.S.W.

The Health Sciences faculty and students have collaborated to produce a set of exhibits that demonstrate some of the public health work in which the department is involved, including: program information on community-based outreach that combines services to non-traditional students and engagement with local community human services agencies; a visual presentation on different aspects of public health combined with interactive learning activity; Health Sciences students' service learning projects that have identified both community health issues and assets; and faculty examples of creative work linked to the improvement of the community's public health.

HISTORY AND POLITICAL SCIENCE

IDEAS FOR THE FUTURE

Joseph Preston Baratta, Ph.D.

This work is the lead article in the April 2009 newsletter of the World Citizens Party, Massachusetts Branch. The new party's goal is to introduce a concurrent resolution in Congress calling for convening a general conference of the United Nations (Art. 109 of Charter) to strengthen the U.N. by granting it some powers of ruling by law. My article addresses the question, Why a party? I answer by recounting the history of efforts to enlist the public in systemic U.N. reform and world federalism.

THE "CHINESE OF THE EAST?": FRENCH-CANADIANS IN MASSACHUSETTS
Bruce Cohen, M.A.
This article discusses cultural, ethnic, labor, religious, and political tensions between French-Canadians and Irish Catholics as well as between French-Canadians and various Protestant groups from 1865 to 1930. While the Irish were the first Catholic ethnic group, they fared better than the French-Canadian Catholics, who did not initially speak English and were less interested in the culture of the United States than that of Quebec. Treated in the 1870s and 1880s as transient and cheap labor, the "Chinese of the East," the French-Canadians gradually moved towards assimilation into the American work force and away from repatriation to Quebec through the Church's efforts.

DIGITAL WORCESTER
Tona Hangen, Ph.D.
A collaborative digital archive of Worcester history from 1800-2000, using the Omeka open-source publishing platform. Students develop projects featuring their own photographs or archival resources in local historical institutions, and digitize those resources to make them text-searchable and available online. Visit it at http://www.digitalworcester.org

HISTORICAL DICTIONARY OF THE PROGRESSIVE ERA
Peter C. Holloran, Ph.D.
This book, co-authored with Catherine Cocks and Alan Lessoff, was published by Scarecrow Press in 2009.

SOCIAL HISTORY OF THE UNITED STATES: THE 1980S
Peter C. Holloran, Ph.D.
This book, co-authored with Andrew Hunt, was published in 2009 by ABC-Clio Press.

CHRISTIANS AND JEWS UNDER ISLAM
Najib Saliba, Ph.D.
This article deals with the treatment of Christians and Jews in the Arab-Islamic State, including Spain (7th-15th century), and the Ottoman Empire (14th to the 19th centuries). The article was published in the fall of 2008 in *The Word* magazine, the denominational voice of the Antiochian Orthodox Church.

HONORS PROGRAM

CHICAGO AS MODERN COUNTRY MUSIC MECCA
Lisa Krissoff Boehm, Ph.D.
Chicago, the economic and cultural capital of the state of Illinois and indeed the entire Great Lakes region, offered a home to the National Barn Dance (NBD) radio program, which reigned as the most important national radio program featuring rural folk music in the 1930s and 1940s. Yet, when the history of American music and broadcasting was written, Chicago's part in the story was virtually forgotten. The NBD itself (before the production of the "Hayloft Gang" film and supplementary book project) did not figure highly in the memories of country music aficionados. Part of the problem stems from America's preference for visual images. Perceptions of Chicago in the mid-twentieth century centered more on the images of immigrants, gangsters, and gunfights published by the nation's newspapers and featured on American movie screens than on the wholesome sounds of these musicians.

MAKING A WAY OUT OF NO WAY: AFRICAN AMERICAN WOMEN AND THE SECOND GREAT MIGRATION
Lisa Krissoff Boehm, Ph.D.
Over seven years, I gathered oral histories with women migrants and their children, two groups largely overlooked in the story of the Second Great Migration, 1940-1970. Five million African Americans moved north during this migration, transforming the nation. The viewpoint of African American women has rarely been covered. The rich oral histories reveal much that is surprising. Although the Jim Crow South presented persistent dangers, the women retained warm memories of southern childhoods. Notwithstanding the burgeoning war industry, most women were left out of industrial work. The North offered its own institutionalized racism; the region was not the promised land. This project was published as a book in April 2009.

THE STRESS FROM NURSING SCHOOL IS RELATED TO STRAINED PERSONAL RELATIONSHIPS AND MAY NEGATIVELY IMPACT HEALTHY COPING MECHANISMS

Nicole Carvelli, Timily Henrickson, Christie Hudson, Amy Monaghan, Jilian Parzych
Faculty Adviser: Andrea Wallen, Ed.D.

Obtaining a bachelor's degree in nursing is typically a four-year process that requires a great deal of energy. Stress experienced by students requires use of coping mechanisms that can be either healthy or unhealthy, which vary based on the individual. Stress experienced by nursing students may also impact personal relationships. The researchers administered a survey to senior level nursing students at Worcester State College. Students were asked to rate their stress level currently and during their past years. Focus areas included the impact of stress upon personal relationships, and coping mechanisms used to deal with stress.

FOOD ALLERGY AWARENESS ON A COLLEGE CAMPUS

Lyn Dembowski
Faculty Adviser: Jay Mahoney, Ph.D.

In the last 10 years there has been an estimated 18 percent increase in the number of people who suffer from food allergies in the United States. The purpose of this project, in its third year of development, is to heighten the awareness of food allergies. Food allergies pose a business problem, a moral mandate and an ethical dilemma to all organizations in the food industry. The federal and state governments have passed laws and many organizations have adopted policies to further protect those afflicted. I did extensive research of 15 colleges and looked to see if they had anything addressing students with food allergies. I created a proposal for a section to be added in the Student Handbook and put together an Information Packet for prospective students to let them know how they would be taken care of here at WSC.

ORAL HISTORY FOR THE WORCESTER WOMEN'S HISTORY PROJECT

Catherine Milkowski
Faculty Adviser: Lisa Krissoff Boehm, Ph.D.

I conducted an oral history research project for the Worcester Women's History Project. My work will be archived at the Schlesinger Library for the History of Women in America at Harvard University and will be a resource for historians for hundreds of years to come. The project, conducted as part of my women's studies class on campus, followed the guidelines of the Oral History Association. Anne Milkowski was born in Worcester, and works in the field of occupational therapy. In the interview, Milkowski poignantly reveals her struggle with breast cancer. I presented these findings in my women's history course, take for honors credit, and at the Worcester Women's History Project year-end research symposium.

ORAL HISTORY FOR THE WORCESTER WOMEN'S HISTORY PROJECT

Tonia Naughton
Faculty Adviser: Lisa Krissoff Boehm, Ph.D.

I conducted an oral history research project for the Worcester Women's History Project. My work will be archived at the Schlesinger Library for the History of Women in America at Harvard University and will be a resource for historians for hundreds of years to come. The project, conducted as part of my women's studies class on campus, followed the guidelines of the Oral History Association. I interviewed Constance Lauziere. She is a representative woman as she has been married three times; divorce is a growing trend in our culture. She also has run a day care program for 15 years; work in early childhood education is a frequently chosen field for working women.

ORAL HISTORY FOR THE WORCESTER WOMEN'S HISTORY PROJECT

Franklin Rosenberg
Faculty Adviser: Lisa Krissoff Boehm, Ph.D.

I conducted an oral history research project for the Worcester Women's History Project. My work will be archived at the Schlesinger Library for the History of Women in America at Harvard University and will be a

resource for historians for hundreds of years to come. The project, conducted as part of my women's studies class on campus, followed the guidelines of the Oral History Association. I interviewed a local woman, Mary Anderson. The interview has been recorded and transcribed, and was presented at the Worcester Women's History Project's year-end research symposium on April 20. I also presented the findings in my women's studies course, taken for honors credit.

PERFECT NUMBERS & PYTHAGOREAN TRIPLES

Kenneth Sanderson

Faculty Adviser: Hansun To, Ph.D.

Mathematicians have held a special interest in perfect numbers ever since they were discovered by early Greek mathematicians. In this field, it is always intriguing to see how different topics are related. In response to a proposed problem, I proved that if P is an even perfect number, then there exist positive integers a < b < c such that P = a + b + c and (a + b)^2 + (a + c)^2 = (b + c)^2; that is, (a + b; a + c; b + c) is a Pythagorean triple. I accomplished this using the famous Euclid-Euler Theorem.

LANGUAGES AND LITERATURE

POEMS BY DENNIS BRUTUS

Ken Gibbs, Ph.D.

Poems from the Dennis Brutus Collection in the LRC, selected, transcribed, and edited, with an introduction by Ken Gibbs. This is the second edition of poems gleaned from the Dennis Brutus Collection. The third edition, considerably expanded with new poems, is being prepared for publication this summer.

WINNING POETRY

Jacqueline Morrill and Steven Smyth

Faculty Adviser: Philip Burns, Ph.D.

This is a bound collection of the poems submitted by the first and second prize winners to the A. Barbara Pilon Poetry Contest at Worcester State College for the current academic year.

CODE-SWITCHING, SHAPE-SHIFTING, ASKING DIFFERENT QUESTIONS: SOUTH ASIAN WOMEN'S LANGUAGE IN AND ACROSS NATIONS

Josna Rege, Ph.D.

This essay is a chapter in Other Tongues: Rethinking the Language Debates in India, published by Rodopi Press, 2009. In order to question overly rigid conceptions of location and language in evaluating literary works, it discusses two writers who fall into neither and/or both of the polarized categories of 'diaspora vs. native' and 'English vs. vernacular.' It focuses on two writers, C.S. Lakshmi (aka Ambai) and Rukhsana Ahmad, based in India and Britain respectively, who work in different genres and registers as they address different issues and constituencies. In so doing, they reach effectively across national, ethnic, linguistic, and class/caste barriers.

CURRENTS IN TEACHING AND LEARNING

Josna Rege, Ph.D.

Currents in Teaching and Learning is a new peer-reviewed electronic journal published twice a year by the Worcester State College Center for Teaching and Learning. Non-specialist and jargon-free, *Currents* seeks to improve teaching and learning in higher education with short reports on classroom practices as well as longer research articles and explorations of challenges facing teachers today. *Currents* is intended for faculty and graduate students teaching in all academic disciplines. Editor Josna Rege is assisted by an active advisory board of WSC faculty across the disciplines. See the latest issue at: www.worcester.edu/currents.

THE DIFFERENCE THAT DIASPORA MAKES: SHIFTING SUBJECTIVITIES IN ANITA DESAI'S FIRE ON THE MOUNTAIN AND KIRAN DESAI'S THE INHERITANCE OF LOSS

Josna Rege, Ph.D.

The Inheritance of Loss (2006), Kiran Desai's Booker Prize-winning second novel, is deeply indebted to *Fire on the Mountain* (1977), her mother Anita Desai's novel of a generation earlier; so much so that it can be read as a 21st-century reworking. I suggest that postcolonial theory, a new era of globalization, and her diasporic location allowed Kiran Desai to develop her novel in ways that were not available to her mother. I compare gender and class subjectivities in the two novels, and assess the difference that diaspora makes. [Conference paper, "Unsettling Women: Contemporary Women's Writing and Diaspora, Leicester, England, July 2008.]

MONTY PYTHON MEETS KAFKA: "BRAZIL" AS QUEST

MaryLynn Saul, Ph.D.

Sam Lowry in the film *Brazil* is on a quest. We may compare it to chivalric quests and to Kafka's *The Trial*. Brazil may in fact be said to be Monty Python and the Holy Grail meets Kafka. These motifs are expanded upon in Sam's dreams, which parallel the action of Sam's waking life. There is a change in tone of the dreams, indicating the conflict in the movie between the more optimistic quest theme and the pessimistic depiction of the oppressive governmental system that resembles the Kafka novel. The pessimistic side seems to take over, as the dreams demonstrate.

MATHEMATICS

EXTREME VALUES OF FUNCTIONS OF SEVERAL VARIABLES

Derrick Bennett

Faculty Adviser: Hansun To, Ph.D.

The abstract of this presentation is on solving for minimum values of multivariable functions using Lagrange's Theorem. The problem was proposed in the October 2008 issue of Mathematics Magazine. The problem stated let x, y, and z be positive real numbers with x+y+z = xyz. Find the minimum value of $\sqrt{1+x^2} + \sqrt{1+y^2} + \sqrt{1+z^2}$. The solution of the stated problem was found to be $x=y=z=\sqrt{3}$, which gave a minimum value of 6.

PROBLEM SOLVING WITH MODEL DRAWING

Richard Bisk, Ph.D.

The model drawing approach to problem solving is used extensively in the math curriculum of Singapore. It takes students from the concrete to the abstract via an intermediary pictorial stage. Students create bars and break them down into "units." The units create a bridge to the concept of an "unknown" quantity that must be found. Students can learn to use this strategy in the primary grades and continue with it through the middle grades. At Worcester State College, we teach this technique to our pre-service elementary teachers.

MATHEMATICS PREPARATION AND ACHIEVEMENTS AND THE COLLEGE EXPERIENCE

Richard Bisk, Ph.D., and Mary Fowler, Ph.D.

Mathematics is an integral part of the educational experience of all students. Students arrive at Worcester State College with varying levels of mathematical preparation and are given tests so they are placed into a class for which they are well prepared. This poster presents results of investigations studying the mathematical experience of WSC students. How does a student's level of mathematical preparation affect his or her success in college? How does a student's mathematical achievement while at WSC relate to his or her likelihood of college completion?

FLIGHTS FROM ORLANDO: IS THERE A CONNECTION BETWEEN DISTANCE AND PRICE?

Thomas Brennan and Abigail Chmielecki

Faculty Adviser: Maria Fung, Ph.D.

We analyze data from two different variables, study their correlation, examine outliers, and analyze the validity of the linear model.

EVALUATING A FRACTION OF THE FORM Z/(Y+Z)

Meghan Coyne

Faculty Adviser: Hansun To, Ph.D.

The objective of this problem is to find z/(y + z), given that z/(x + y)= a and y/(x + z)= b. There are two cases for solving this problem: y = z and y ≠ z. In the trivial case, y = z, it is easy to show z/(y + z)=1/2. For the second case, y ≠ z, with algebraic transformations on z/(y + z), and by recognizing algebraic similarities between a + 1 and b + 1 it can be shown that z/(y + z) = (ab + a)/(a + 2ab + b).

FINDING WEINER INDEX FOR THE GRID AND COMB GRAPHS ON 2N VERTICES

Joe Fredette

Faculty Adviser: Hansun To, Ph.D.

In Graph Theory, we can define the "Weiner Index," which is the sum of all the shortest paths in a given graph. Given two specific indexed sets of graphs, namely the Grid and Comb graphs on 2n vertices, the aim of this paper was to characterize the Weiner Index for all the Grid and Comb graphs. In this paper, we do this by using techniques from signal analysis and from the theory of recurrence relations.

MOIRÉ FRINGES

Joe Fredette

Faculty Adviser: Maria G. Fung, Ph.D.

Moiré Fringes, which are most often noticed as interference patterns on a TV screen or through a window screen, are the small bands caused by the interference of two iterated patterns. We can describe this interference as a function of the gradients of two iterated functions. This gradient does not only predict the existence of Moiré Fringes, but also their periodicity and density. In this project, we describe how this metric for Moiré fringes works, and provide some examples including mathematical code, which generates images, and associated informational graphs, which show Moiré Fringes. Math majors Jonathan Lussier and Richard Ouellette collaborated on this project.

CHALLENGING PROBABILITY PROBLEMS

Maria G. Fung, Ph.D.

This is a conference presentation given at the Northwest Mathematics Conference for middle and high school teachers. We consider the Sock Drawer and the Chuck-a-Luck classic probability problems. We illustrate ways to turn them into successful activities for the middle and high school classroom.

MATH FACULTY AS PARTNERS IN TEACHING NON-EUCLIDEAN GEOMETRY COURSE FOR K-12 TEACHERS

Maria G. Fung, Ph.D.

We discuss how the Oregon Mathematics Leadership Institute (OMLI) enabled a team of five instructors, including a master teacher and four mathematics faculty, to design and implement a course on non-Euclidean geometry for K-12 teachers. We focus on the intense structure of the course, which was delivered in 15 sessions of two hours each. We also discuss the content of the course, which included units on both taxicab and spherical geometry. Finally, we emphasize the pedagogy of the course, which included hands-on cooperative learning that was carefully orchestrated to ensure everyone's participation, as well as skilled facilitation that was aimed at eliciting productive mathematics discourse, and thus at improving understanding of mathematical concepts.

THE NCTM NAVIGATING SERIES

Maria G. Fung, Ph.D.

We will present a selection of featured activities from the Navigating Series of the NCTM that focus on different grade levels and different topics in mathematics education.

WEIGHT AND GAS MILEAGE OF CARS

Sarah Kendall and Joseph Geagea
Faculty Adviser: Maria Fung, Ph.D.

We analyze data from two different variables, study their correlation, examine outliers, and analyze the validity of the linear model.

ARE NURSES' SALARIES DEPENDENT ON THE PRICE OF LIVING?

Lauren Lagace and Elizabeth Flight
Faculty Adviser: Maria Fung, Ph.D.

We analyze data from two different variables, study their correlation, examine outliers, and analyze the validity of the linear model.

ACUTE TRIANGLE INEQUALITIES

Kenneth Sanderson
Faculty Adviser: Hansun To, Ph.D.

Mathematicians throughout the years have developed many powerful inequalities relating to acute triangles. One of the more famous is Euler's Inequality, published in 1765, relating a triangle's inradius to its circumradius. Consider an acute triangle with side-lengths a, b, and c, with inradius r and semiperimeter p. James Keenan, a 2008 WSC graduate, and I proved that $(1-\cos A)(1-\cos B)(1-\cos C) \geq \cos A \cos B \cos C(2-(3\sqrt{3}r)/p)$. In this PowerPoint presentation, I describe our proof, which was accomplished using Euler's Inequality, Heron's Formula, Blundon's Inequality and others.

CRYPTOGRAPHY, CREDIT CARDS, AND CELL PHONES

Susan Schmoyer, Ph.D.

Most of us use cryptography every day without even realizing it. Every time you use your cell phone and every time you buy a book online, you are using cryptography to send encrypted messages. In this poster we outline the basics of the cryptography involved and indicate how advanced mathematics is used in these everyday transactions.

THE TRIVIALITY AND NONTRIVIALITY OF TATE-LICHTENBAUM SELF PAIRINGS ON JACOBIANS OF CURVES

Susan Schmoyer, Ph.D.

Let E be an elliptic curve defined over a finite field F and suppose that E[n] is defined over F. For attacking the elliptic curve discrete logarithm problem it is useful to know when points pair with themselves nontrivially under the Tate-Lichtenbaum pairing. In this paper we characterize when all points in E[n] have trivial self pairings. This result is expressed in terms of the action of the Frobenius endomorphism on E[n^2]. We give examples of how this result can be used to derive some well-known residuacity laws. We then generalize the elliptic curve result to Jacobians of algebraic curves of arbitrary genus.

HOMOGENIZATION OF DYNAMIC LAMINATES

Hansun To, Ph.D.

This paper addresses the study of the homogenization problem associated with propagation of long wave disturbances in materials whose properties exhibit not only spatial but also temporal inhomogeneities (called dynamic materials). Homogenization theory is employed to replace an equation with oscillating coefficients by a homogenized equation. Two typical examples of periodic homogenization are considered: the wave equation and Maxwell's system coefficients oscillating rapidly not only in space but also in time. Conditions that generate applicability of the homogenization procedure to dynamic materials composites are developed. The effective tensors of rank-one laminates for one-dimensional wave equation and the full Maxwell's system are computed explicitly. We also note some dramatic differences between the hyperbolic and the elliptic cases.

NURSING

CARDBOARD VILLAGE: A GLIMPSE INTO THE LIVED EXPERIENCE OF HOMELESSNESS

Maryellen Brisbois, M.S.

In September 2008, on the lawn of the Worcester State College Student Center, senior nursing students and faculty raised awareness of the plight of the homeless population in the community by creating a "cardboard village" that allowed them to spend the night out of doors. As part of the project, students raised money and collected canned goods and coats that were distributed to local homeless shelters and food banks. The estimated homeless population in Worcester is 2,000 (Homeless Outreach and Advocacy Program).

IMPLEMENTATION OF PERSONAL DIGITAL ASSISTANTS IN THE CLINICAL SETTING: A MINI-GRANT STUDY

Maryellen Brisbois, M.S.

The goal of this minigrant was to develop a pilot study to implement the use of PDAs in the Worcester State College nursing program. The purpose of this study is to describe confidence levels of students in their clinical and medication administration skills at point-of-care service, which refers to providing patient care wherever the patient might be located, i.e. home, in the office or at the bedside. The confidence level of nursing students' clinical skills with PDA use, their medication administration skill with PDA use, and their comfort level with use of this technology were assessed. Participants of the study were junior and senior nursing majors in the community, pediatric, and medical/surgical rotations.

ACUTE OCCUPATIONAL EXPOSURE TO HYDROGEN SULFIDE

Stephanie Chalupka, Ed.D.

Hydrogen sulfide is a colorless, flammable, explosive, irritant gas that acts as a systemic asphyxiant. Occupational exposures occur in a wide variety of sectors, including agriculture, human sewage treatment, fossil fuel extraction and processing, hot-asphalt paving, commercial fishing, and heavy water synthesis. The article provides the occupational health nurse with guidance on the potential for irreversible and nearly immediate lethal outcomes of hydrogen sulfide exposure; the need for rigorous air monitoring, gas-sensing alarms, and control technology; and the importance of worker education regarding potential risk, evacuation procedures, and clean-air-supplying respiratory protective equipment to be used as escape equipment during gas leaks and for worker rescue.

HERPES ZOSTER IN THE WORKPLACE

Stephanie Chalupka, Ed.D.

The Centers for Disease Control and Prevention estimate that one-third of Americans will develop varicella zoster virus (VZV) in their lifetime, with approximately one million new cases annually. Although deaths attributable to VZV are rare, except among immunocompromised populations, VZV can have important implications in the workplace. Employees infected with VZV, including those with postherpetic neuralgia, lose an average of 129 hours of work per episode. This article provides the occupational health nurse with recommendations on the management of VZV in the workplace and use of the live-attenuated vaccine for the prevention of VZV and its sequelae.

METAL FUME FEVER

Stephanie Chalupka, Ed.D.

Metal fume fever (MFF) is a benign, self-limited syndrome resulting from deposition of fine metal particulates in the alveoli. Primarily associated with the inhalation of zinc oxide fumes produced when zinc-coated (galvanized) steel or zinc-containing alloys are heated to high temperatures, MFF is an occupational hazard for those employed in a wide range of metal-working occupations. This article provides occupational health nurses with an overview of the diagnosis of MFF, details on clinical management, and guidance on state-of-the-art preventive measures, including built-in fume extractors on welding machines and air-purifying respirators built into welding helmets.

NEEDLESTICK AND SHARPS INJURY PREVENTION: ARE WE REACHING OUR GOALS?
Stephanie Chalupka, Ed.D.
Exposure to bloodborne pathogens is one of the most dangerous occupational health hazards in ambulatory care. This article describes preventive interventions based on the industrial hygiene Hierarchy of Controls model. This model prioritizes preventive interventions through reduction or elimination of non-safety-engineered devices; use of engineering controls; isolation or elimination of hazards through the design or application of safeguards to prevent exposure; and use of administrative controls, work practice controls, and personal protective equipment. Funded by: National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention (Grant no. 1RO1 OH008229).

SHARPS INJURIES AND BLOODBORNE PATHOGEN EXPOSURES IN HOME HEALTHCARE
Stephanie Chalupka, Ed.D.
Home healthcare is one of the fastest growing industries in the United States. Approximately 7.6 million individuals receive home healthcare services annually. The home healthcare setting poses many challenges that increase the risk of sharps injuries. Home health nurses face unique challenges in preventing sharps injuries in the home. This article examines risk factors for sharps injuries in the home healthcare setting, the scope of the problem, the regulatory framework relevant to sharps injuries, and the role of occupational health nurses in prevention. Funded by: National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention (grant no. 1RO1 OH008229).

STRENGTHENING THE CAPACITY OF HEALTH PROFESSIONALS SERVING MINORITY AND LOW-INCOME COMMUNITIES TO PREVENT ENVIRONMENTAL HEALTH RISKS
Stephanie Chalupka, Ed.D.
This two-year project sought to build capacity in over 1,800 health professionals serving low-income, immigrant/refugee or minority children who suffer disproportionately from the impacts of environmental contaminants in the six New England states. The project goal was the empowerment of health professionals to create safe environments for children through their work by proactive identification of potential environmental hazards and sentinel illnesses, effective utilization of prevention and control strategies, advocacy and risk communication in patient care, and community-level intervention. Funded by: United States Environmental Protection Agency, Office of Children's Health (grant no. CH-83265501).

STUDYING HOME HEALTH CARE NURSES AND AIDES: RESEARCH DESIGN AND CHALLENGES
Stephanie Chalupka, Ed.D.
Home healthcare (HHC) is growing rapidly and yet health and safety conditions of HHC nurses and aides are poorly understood. Study of this workforce presents unique challenges because it is decentralized, often part-time and mobile. This paper addresses the challenges of recruiting a large HHC cohort and describes novel cross-sectional survey methodology. A total of 1772, 18-page health and safety surveys were distributed and 1225 usable surveys were collected yielding a 69% overall response rate.

NURSING HEALTHCARE OUTREACH IN BELIZE
NU 400 International Health Care Outreach Students
Faculty Adviser: Kate Baldor, M.A., M.S.
Eleven senior nursing students, three faculty and five BSN alumnae from the WSC Department of Nursing are staffing two working trips to Belize in 2009. These are the fourth and fifth trips to remote villages in southern coastal Belize to work with local professionals in providing quality healthcare to underserved communities. On each trip we adopt one or more schools and complete physical assessments on approximately 300 students. The work we perform would take local staff six weeks to complete. Simple disorders, such as otitis, bronchitis, common cold, lice and infection, are treated on the spot after obtaining parental consent for treatment. Complex disorders are referred to specialists with transportation and support through our local sister organization, Equity House Belize.

PHILOSOPHY

PRACTICE AND PREGNANCY: RETHINKING THE 'BIRTH PLAN' AS A MORAL STORY
Barry DeCoster, Ph.D.
In this paper, I take a philosophical look at the creation and use of "birth plans," a common narrative tool many women are encouraged to write about how they hope their birth experience will proceed. While writing birth plans have become a frequent component for many women's birth experiences, I seek to clarify the moral goals for writing birth plans, as well as raise a number of moral concerns about this practice.

AWAKENING TO WISDOM: THE PERENNIAL PHILOSOPHY OF ECKHART TOLLE
Courtney D. Schlosser, Ed.D.
This study develops the philosophical assumptions, insights, and vision of Eckhart Tolle—one of the most enlightened thinkers of our time. It explores Tolle's major categories and concepts relating to the Perennial Philosophy of the major religions and philosophies of history. Tolle argues that the madness and insanity of the modern world is traceable to an historic and psychological pain-body inherited from our most distant ancestors. The solution to the problem of pain and suffering is to cease identifying with forms that alienate one from the eternal Now of Life. Profound implications for a new ethics and culture of Earth based upon nonviolence, meditative living, and spiritual wisdom.

THE MATRIX OF PHILOSOPHY: THE QUEST FOR UNDERSTANDING, KNOWLEDGE, AND NONVIOLENCE
Courtney D. Schlosser, Ed.D.
This CD-ROM contains three electronic books by the author covering Western and Asian philosophies and religions from ancient, medieval, modern and postmodern periods of history. An additional feature of the CD-ROM is its extensive anthology of primary and secondary sources in philosophy, theology, science, and literature. The three texts offer in-depth, philosophical analysis and synthesis of major philosophers, their lives, thought and writings in the context of schools of thought that they belonged to. Emphasis is upon the history and philosophy of Western schools of thought in the context of religious, ethical, and scientific currents and developments. Asian philosophies are Indian and Chinese in their ancient origins and developments.

GENOCIDE STUDIES AND PREVENTION: AN INTERNATIONAL JOURNAL
Henry Theriault, Ph.D.
Genocide Studies and Prevention: An International Journal is the foremost international journal of genocide studies and the official journal of the International Association of Genocide Scholars. Its mission is to understand the phenomenon of genocide, create an awareness of it as on ongoing scourge, and promote the necessity of preventing it, for both moral and pragmatic reasons. It seeks to educate, inform, and encourage new generations of scholars to conduct research on genocide and to provide a forum for those who wish to work towards preventing it. Henry Theriault is one of four general editors of the journal and is Special Editor for Volume 3, Number 2, August 2008.

APHRA BEHN: A WOMAN'S COMEDY
Kristin Waters, Ph.D.
On March 11, 2009, there was a reading of my play, *Aphra Behn: A Woman's Comedy*, at the Brandeis University Women's Studies Research Center in Waltham, featuring professional and award-winning actors such as Annette Liberman Miller (*The Cherry Orchard, Martha Mitchell Calling*). The play draws on the works of 17th century playwright and pioneer for women's rights, Aphra Behn. Her writing is funny, sexy, bawdy, and full of insight about the human condition. This short work makes her writing and life accessible to a modern audience. The reading was followed by a Talkback moderated by Scott Edmiston, Director of the Arts at Brandeis.

CRYING OUT FOR LIBERTY: CONCEPTS OF FREEDOM AND RIGHTS IN THE ABOLITION MOVEMENT
Kristin Waters, Ph.D.
This essay, presented at the Southern Political Science Association meeting in January 2009, explores some of the deeper notions of racial patriarchy embedded in liberalism in contrast with radical liberation theories. The complex structures of racial patriarchy emerged with the developing Enlightenment ideologies of liberalism, particularly the specific ideas of equality and freedom put forth by Locke and Jefferson. Simultaneously, an oppositional discourse was developing through the works of Aphra Behn, Mary Wollstonecraft, Olaudah Equiano, David Walker, Maria W. Stewart and others, who exposed the inconsistencies and hypocrisy of classical liberal theory and practice.

REVIEW OF THE TROUBLE BETWEEN US: AN UNEASY HISTORY OF WHITE AND BLACK WOMEN IN THE FEMINIST MOVEMENT
Kristin Waters, Ph.D.
Review of *The Trouble Between Us: An Uneasy History of White and Black Women in the Feminist Movement* by Winifred Breines. (New York: Oxford University Press, 2006) Review by Kristin Waters and Carol Conaway in the *Journal of American History*, the leading scholarly publication and the journal of record in American history. This review addresses Breines' treatment of the early Civil Rights Movement, particularly racial and gender tensions during Freedom Summer and in the Student Non-Violent Coordinating Committee (SNCC). It evaluates Breines' analysis of the attempts to build bridges across misunderstandings in the 1970s using common concerns such as violence against women and homophobia.

PHYSICAL AND EARTH SCIENCES

WORCESTER STATE COLLEGE: THEN AND NOW
Cassem Chebbani
Faculty Adviser: William Hansen, Ph.D.
College campuses need ways to keep track of their infrastructure and resources. Geographic Information Systems (GIS) is a very useful way to help with this dilemma. GIS is a set of software tools that helps us store and access spatial data. GPS fieldwork along with GIS mapping made it possible to create a detailed map of the Worcester State College campus. Results showed how much impervious surface the campus had throughout the 1900s all the way up to present day. The data gathered showed us that as time progressed, impervious surface on campus also increased.

PERSISTENT REGIONAL PEDOGENIC SIGNALS OBSCURING CULTURAL PERTURBATION IN EAST TEXAS SOILS
Dariusz Chlebica
Faculty Adviser: Douglas S. Frink, Ph.D.
Soil samples obtained from three archeological sites along Flat Creek in Cherokee County, Texas, are dated using the Oxidizable-Carbon Ratio (OCR) procedure. Calculated ages of soil packages related to perturbations in the three soil columns do not correlate with the age of the recovered artifacts (±300 years). Similarly aged definable soil packages are indicated in the OCR data from the Storm Site located in adjacent Houston County, suggesting a regional rather than local cause. Paleoclimatic reconstructions from tree ring data and Greenland ice core data are compared with these OCR data, suggesting possible climate driven soil perturbations at regional scales.

PUBLIC TRANSPORTATION IN THE GREATER WORCESTER AREA

Jeffrey Cranson

Faculty Adviser: William Hansen, Ph.D.

Public transportation in the Greater Worcester Area was studied to allow for a better understanding of how to maximize passenger use and limit automobile traffic within the area. A Geographic Information System database was created showing past and present commuter maps, automobile use, and work force in the study area. The data shows that only 1.2% of person trips within the city are taken on public transit. Results show how ineffective public transportation is in the minds of Worcester residents, and can be used as a basis for creating an alternative, innovative transit system in the area.

HISTORICA BATHYMETRIC CHANGES IN THE LOWER PASSAIC RIVER

Jeffrey Cranson and William Hansen, Ph.D.

The Passaic River is a heavily polluted waterway that is part of the New York Harbor Estuary; sediments are contaminated with a variety of organic pollutants and metals including high levels of Dioxin. This study converted historical hand-compiled hydrographic survey sheets into digital Geographic Information System digital data and examined the depositional and erosional changes in the Lower Passaic River for the time period from 1949 through 1986. Since the halt of periodic dredging in the mid 1940s significant deposition has occurred in both the Federal Navigation channels and near shore areas.

MAGNETS, CURRENTS AND LOUDSPEAKERS

Keith Dusoe

Faculty Adviser: Sudha Swaminathan, Ph.D.

The principles of electricity and magnetism were used to build a loudspeaker using a recycling bin and a plastic yogurt container. This demonstration is part of a set of experiments designed to present physics using common objects and to provide ninth grade teachers with creative and accessible ways to teach physics. The broader goal is to be prepared to participate in the Physics-First initiative in Central Massachusetts.

THE ASIAN LONGHORNED BEETLE (ALB)

Paul Evangelidis

Faculty Adviser: William Hansen, Ph.D.

The United States Department of Agriculture (USDA) detected the first infestation of the Asian Longhorned Beetle (ALB) in the City of Worcester, Massachusetts on August 6, 2008. Geographic Information Systems (GIS) software is being used to locate the infestation and the variety of trees infected. Approximately 33 square miles comprising northern sections of Worcester and portions of Holden, Boylston, West Boylston and Shrewsbury are under strict regulation to contain the infestation. This area is being surveyed for infestation and the results mapped out into zones. This analysis examined zone 4. All infested trees must be removed and chipped by USDA as a precaution to prevent further infestation.

SCHOOL SPENDINGS IMPACT ON PERFORMANCE

Sean Roberts

Faculty Adviser: William Hansen, Ph.D.

The Massachusetts Comprehensive Assessment System (MCAS) is a means to measure school performance and hold schools accountable for providing a certain level of education to students. Good schools require an adequate budget to pay for expenses, but the question is whether a higher budget necessarily means a better education. Using data from doe.mass.edu it was established whether higher spending per student translated into better MCAS performance. Also it was found whether high-quality school systems increase the value of one's home. Average home values in school districts were compared to see if performance did indeed have an effect.

WORCESTER STATE COLLEGE CAMPUS - EDUCATIONAL RESOURCE

Stephen Roberts

Faculty Adviser: William Hansen, Ph.D.

Using the college campus as a learning resource is one of the key tenets of campus sustainability. The Worcester State College campus is used by a variety of disciplines for examining ecological habitats and processes as well as distribution of physical and cultural resources. This project uses field data collection, both past and current data, to create and compile an inventory of campus resources in the Geographic Information Systems (GIS) database. The data will be used to make a detailed GIS map of the Worcester State College campus including buildings, campus surface types, and parking lot types.

PSYCHOLOGY

PERFECTIONISM, SOCIAL SUPPORT, AND STRESS AMONG UNDERGRADUATES

Christine Becerra and Champika K. Soysa, Ph.D.

Perfectionism was higher among first-year students than sophomores. Perfectionism was associated with both debilitating achievement anxiety and overall stress. In addition, dimensions of perfectionism that reflect personal expectations like concerns about mistakes, doubts about actions, and personal standards were associated with debilitating anxiety, while dimensions reflecting parental expectations and parental criticism, were not. Increasing perceived social support from family was associated with decreasing overall stress, but not debilitating anxiety. Women reported greater debilitating anxiety than men, and men reported greater facilitating anxiety than women. Finally, both perfectionism and debilitating achievement anxiety contributed unique variance to overall stress.

ROLE OF COLLEGE STUDENTS IN CARING FOR SICK OR ELDERLY FAMILY MEMBERS

Mary Jane Rosati

Faculty Adviser: Pearl Mosher-Ashley, Ph.D.

As the US population ages, the need for caregivers for sick or disabled elders becomes more urgent. College students may be called upon to help with this care by their families. The family care giving literature is vast but there is little focus on young adults as caregivers. The present study was designed to explore the role Worcester State College students play, if any, in caring for sick, disabled, or elderly family members. Seventy WSC students were recruited and surveyed from the psychology pool at the college. They answered questions on levels of involvement in caring for sick, disabled, or elderly family members along with their experiences of stress.

AN ECOLOGICAL SYSTEMS THEORY PERSPECTIVE OF TRAUMA AND RESILIENCE IN POST-TSUNAMI SOUTHERN SRI LANKA.

Champika K. Soysa, Ph.D.

Trauma and resilience were examined from an Ecological Systems Theory perspective in Sri Lankan adolescents post-tsunami (N=60). At three months post-tsunami, adolescents reported greater severity of PTSD symptoms with high tsunami-exposure compared with low tsunami-exposure. Consistent with previous research, reexperiencing and hyperarousal severity was greater than avoidance- numbing severity. Coping effectiveness, family support, and local-government support were lower with high-exposure compared to low-exposure. Symptom severity decreased across time. Resilience at three months was negatively associated with PTSD symptom severity at 12 months. While PTSD symptom severity at three and 12 months were related, this relationship disappeared when accounting for resilience.

ASSIGNMENTS AND COURSE CONTENT IN TEACHING DIVERSITY. IN R. A. GURUNG & L. R. PRIETO (EDS.), GETTING CULTURE: INCORPORATING DIVERSITY ACROSS THE CURRICULUM. STERLING, VA: STYLUS PUBLISHING.

Champika K. Soysa Ph.D., Lori J. Dawson, Ph.D., Bonnie G. Kanner, Ph.D., Marc J. Wagoner, Ph.D., and Emily G. Soltano, Ph.D.

This chapter represents a sample of teaching strategies used in the Psychology Department at a small, four-year liberal arts state college in Massachusetts. The college has identified the need to enhance diversity initiatives and international perspectives in the classroom in its strategic plan, thereby demonstrating considerable commitment to these issues. The chapter addresses examples of in-class exercises, outside-class experiences, and broader discussions about engaging students in diversity issues and international perspectives, in the undergraduate psychology curriculum.

SOCIOLOGY

BETTER LINKAGES BETWEEN CHILD AND ADULT SERVICES: A SOCIAL NETWORK ANALYSIS

Matthew Johnsen, Ph.D.

This presentation outlined a social network analysis conducted in Clark County Washington in order to describe changes in a social service system for youth who are transitioning from children's mental health services into adulthood. Clark County received four years of funding to expand services available to youth with mental health disabilities as they transition to adulthood. Nancy Koroloff, Maryann Davis, and I presented an analysis of changes in the service system as this grant was undertaken.

DON'T CELEBRATE, ORGANIZE! A PUBLIC SOCIOLOGY TO FAN THE FLAMES OF DISCONTENT

Corey Dolgon, Ph.D.

This was my 2008 presidential address to the Association for Humanist Sociology. In it, I comment on the recent election of President Barack Obama and offer my arguments as to why, despite the progressive nature of the coalition that brought him to power, his election neither symbolizes a "post racial America" nor guarantees a particularly progressive shift in U.S. politics. I conclude that a true public sociology must be engaged with social movements, who are always the force behind progressive social change, not presidential candidates.

IN SEARCH OF ONE BIG UNION: FOLKSONGS AND THE U.S. LABOR MOVEMENT

Corey Dolgon, Ph.D.

Focusing on the role that folksongs play in the U.S. labor movement, the words and music bring both history and theory to life. I am a long-time labor activist and community organizer and have used folk songs to build solidarity on the line and engage students in the classroom. This singing lecture covers labor history from a multicultural perspective and examines the function of folk songs in workers' lives, labor, and organizing.

MAKING THE MOST OF COLLEGE

Matthew Johnsen, Ph.D.

This book review of Richard Light's *Making the Most of College* appeared in the inaugural edition of *Currents in Teaching and Learning*, an electronic journal focusing on the scholarship of teaching and learning. I also serve as Book Review Co-editor for *Currents in Teaching and Learning*.

MUSIC AND SOCIAL CHANGE CULTURAL SERIES

Matthew Johnsen, Ph.D.

On five Monday evenings in March and April, the Sociology Department joined a number of campus organizations to host a series of concerts and movies devoted to the theme of music and social change. Performers included Jim Scott, Joe Jencks, Corey Dolgon, and the local choral group MSTG, which performed with Scott and Jencks. Movies included Pete Seeger: The Power of Song and the Worcester premiere of The Singing Revolution. This series served to enrich a course of the same name taught within the Sociology Department. The series was organized with the assistance of a WSC mini-grant to Matthew Johnsen.

A GLANCE AT WHAT SHAPES HUMAN HISTORY: GLOBALIZATION AND ITS IMPACT ON GIRLS' HUMAN RIGHTS EDUCATION IN TANZANIA

Fortunata Songora Makene, Ph.D.

Theorists of globalization disagree about the precise sources of recent shifts in the spatial and temporal contours of human life. Nonetheless, they generally agree that alterations in humanity's experiences of space and time are working to undermine the importance of local and even national boundaries in many areas of human endeavor. This necessarily suggests the need to rethink key questions on human rights issues. This paper engages in an analysis of power structures underlying the school system; how that analysis translates into practice in internal and external relationships; and if they have sought to create alliances across social differences." [Paper presented at the American Sociological Association Annual Conference, Boston, Mass., August 1-5, 2008.]

GIRLS RIGHTS ARE HUMAN RIGHTS: GLOBALIZATION AND ITS IMPACT ON GIRLS' EDUCATION IN TANZANIA

Fortunata Songora Makene, Ph.D.

Using in-depth interviews and archival research from Tanzania and international organizations, this paper analyzes what happens as international law discourses get translated into policy on the ground and its consequences to a 'girl child's access to education. The paper seeks to analyze power structures underlying the education system and how these translate into practice in internal and external relationships. The paper also addresses how the girl-child continues to be affected despite international treaties requirements to protect their status with regard to education right. [Forthcoming publication at CODESRIA. Initially presented at the 2008 Northeast Law and Society Association, Amherst, Mass., October 31-November 1, 2008]

NONGOVERNMENTAL ORGANIZATIONS AND NATIONAL IMPLEMENTATION OF INTERNATIONAL LAW IN TANZANIA: CHILDREN AND ELDERLY RIGHTS

Fortunata Songora Makene, Ph.D.

This paper examines the tension that exists between the role of Nongovernmental Organizations (NGO) and how they are perceived by Tanzanian citizens addressing: What role do NGOs play in policy formulation and implementation? What forces, if any, will affect the operation of NGOs? Do they recognize contradictions between international law and local cultural practices? I address the relationship between NGOs, international actors, and the state; Specific actions taken by NGOs in Tanzania with regard to human rights to children and elders and analyze differences across regions and NGO sectors in Tanzania and shortcomings of NGOs' work in Tanzania. [Paper presented at the Annual Meeting of the Association of Humanist Sociology, November 5-8, 2008, Boston, Mass.]

URBAN STUDIES

CREATING AN URBAN ARTS DISTRICT FROM WORCESTER'S BROWNFIELDS

William Adu-Boahen, Dante Comparetto, Sianeh Konie, Patrick Shanley, and Tonya Vargas

Faculty Adviser: Steven H. Corey, Ph.D.

This poster will examine the feasibility of turning the old Junction Machine Shop on Beacon Street in Worcester into the center of a thriving Arts District. The United States Environmental Protection Agency (US EPA) defines a brownfield as an abandoned or idle property that contains some level of hazardous and/or toxic waste. There are hundreds of these sites in Worcester and their remediation and rehabilitation into new enterprises can help reinvigorate the city's economy. As one of Worcester's original factories that helped spin off dozens of industrial endeavors, the Junction Mill may again usher in a new era for the city.

ASKING THE RIGHT QUESTIONS: POLLUTION OF LAKE QUINSIGAMOND
Robert Bilotta and Christopher Hoey
Faculty Adviser: Steven H. Corey, Ph.D.
This poster will examine issues related to pollution in and around Lake Quinsigamond. Investigators will pay special attention to those issues and questions being raised by people who live and recreate on or near the lake by evaluating public forums and hearings.

WHAT HAPPENED TO COMMONWEALTH GAS?
Nicholas Charette, Maria Skinner, Stephen Roberts, and Karl Snickars
Faculty Adviser: Steven H. Corey, Ph.D.
This poster is going to take an in-depth look into the history of the Commonwealth gas site adjacent to the Port of Worcester. In addition to site history, current remediation efforts and potentially sustainable uses for the future will be explored.

UPSALA STREET CLEAN UP
Laura Clancy and Astra Perkins
Faculty Adviser: Steven H. Corey, Ph.D.
This poster will examine the brownfield site located at 36 Upsala Street in Worcester, Massachusetts. It will illustrate the history of the site and current remediation efforts that influence current and future uses.

TOXIC EDUCATION
Bryan Cormier, Will Edge, and Paul Blanchard
Faculty Adviser: Steven H. Corey, Ph.D.
This poster will look at hazardous contaminants at the Tatnuck Elementary/Middle School that has potentially dangerous chemicals and oil on the property.

WORCESTER STATE COLLEGE "ELECTION 2008" STUDENTS' SURVEY
Shiko Gathuo, Ph.D., and Marc J. Wagoner, Ph.D.
The recent election for President of the United States represents a potential turning point in terms of civic engagement, as there was a groundswell in youth participation. We wondered if the students here at Worcester State College were a part of such activity. What level of interest in this election did students have? What level of political knowledge did they have; what were their information sources? One week prior to the election (November 4, 2008), we distributed a survey to students to address these questions. We will review what some students at WSC were considering during that period in time.

REDEVELOPING THE HISTORIC COES KNIFE FACTORY
David Harris and Darren Schmidt
Faculty Adviser: Steven H. Corey, Ph.D.
This poster examines the redevelopment of the former Coes Knife factory in Worcester, Massachusetts from an unsightly brownfield to open recreation space. The United States Environmental Protection Agency (US EPA) defines a brownfield as an abandoned or idle property that contains some level of hazardous and/or toxic waste. This poster will also examine the history of the factory and its importance to area's economy.

THE FUTURE OF WORCESTER AIRPORT
Corey Majeau and Scott Poitras
Faculty Adviser: Steven H. Corey, Ph.D.
This poster will exhibit past and current problems with regard to chemical contaminations at the Worcester Airport. It will also show what could replace the airport in the future, such as wind energy turbine facility.

BROWNFIELDS WITHIN THE DRAPER MILL COMPLEX
Chadyn Morrison, Janelle Foley, Mark Costiglione and Joshua Knipe
Faculty Adviser: Steven H. Corey, Ph.D.
This poster will present the history of the Draper Mill Complex in Hopedale, Massachusetts and discuss the environmental impact that this and other brownfields in the area have on the local community. The United States Environmental Protection Agency (US EPA) defines a brownfield as an abandoned or idle property that contains some level of hazardous and/or toxic waste. In addition to site history, remediation efforts and plans for future development of the Hopedale Mill Complex will be analyzed.

ENDING HUNGER TOGETHER
Maureen Power, Ph.D.
Ending Hunger Together will be a photographic poster collage of the work of the Commonwealth Corps at Worcester State College.

STANDARD FOUNDRY: PAST, PRESENT, AND FUTURE
William Toombs, Jr. and William Toombs, Sr.
Faculty Adviser: Steven H. Corey, Ph.D.
This poster will explore the history of the old Standard Foundry in South Worcester. It will show potential uses for the site and ways in which it can once again become an asset for the city.

VISUAL AND PERFORMING ARTS

UNTITLED WORK FOR BRASS ENSEMBLE
Jon Allain
Faculty Adviser: Kyle Martin, D.M.A.
A musical composition for brass ensemble.

UNTITLED WORK FOR PIANO
Sebastian Dill
Faculty Adviser: Kyle Martin, D.M.A.
A brief musical composition in minimalist style for piano.

UNTITLED WORK FOR CELLO & PIANO
Sebastian Dill
Faculty Adviser: Kyle Martin, D.M.A.
A musical composition for cello and piano in the style of chamber music.

SPRING 2009 WORCESTER STATE COLLEGE STUDENT ART SHOW
Gallery Director: **Catherine Wilcox-Titus, Ph.D.**

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WOMEN'S STUDIES

CONFLICT AND CONVERSATION: FEMINIST PEDAGOGY IN TEACHING AND LEARNING SOCIAL JUSTICE
Andrea Dottolo, Ph.D., Sandra McEvoy, Ph.D., Lori Dawson, Ph.D., and Champika K. Soysa, Ph.D.
This symposium explores issues of social justice in the classroom. Panelists address how they use interdisciplinary theory and method in the classroom. Presenters describe pedagogical strategies that infuse social justice into course content and class assignments and activities intended to encourage consciousness-raising and dialogue. Presentations include: A self-censoring assignment about sexuality and homophobia, a classroom simulation about war and conflict, service learning in studying violence against women, and examinations of power in teaching about therapist-client relationships. Panelists reflect upon the importance of incorporating feminist values in their teaching, mentoring and collaboration.

THE APPROPRIATION OF WORLD WAR II AS DECOLONIZING STRATEGY IN ZADIE SMITH'S WHITE TEETH AND ANDREA LEVY'S SMALL ISLAND
Josna Rege, Ph.D.
Two recent novels by black British women, both daughters of Jamaican immigrants, have enjoyed tremendous popular success: *White Teeth* (2000) by Zadie Smith and *Small Island* (2004) by Andrea Levy. Both created white and black British main characters, both reached back in time and place to tell the stories of their parents' generation, and both featured the experience of World War II, shared across racial lines. This paper discusses the postcolonial appropriation of World War II as a key factor in each novel's success across race, class, gender, and generation in contemporary Britain.

PEDAGOGICAL TIPS FOR TEACHING ON DIFFICULT SUBJECT AREAS IN PSYCHOLOGY
Beth Russell, Ph.D., Champika K. Soysa, Ph.D., and Marc J. Wagoner, Ph.D.
This symposium presents a collection of suggestions for teaching across a range of topics often experienced as challenging. As is the case for many of the social sciences, Psychology classrooms often cover material that has personal meaning - in many cases these personal experiences strengthen the learning process by providing personal meaning to the topic at hand. There are, however, sets of topics where personal experience may be negative and powerful enough to interfere with pedagogical goals. The goal of this symposium is to provide instructors with techniques for approaching these topics.

TEACHING PREVENTION ON SENSITIVE TOPICS: KEY ELEMENTS AND PEDAGOGICAL TECHNIQUES. JOURNAL OF PRIMARY PREVENTION, 29(5), 413-433, 2008.
Beth Russell, Ph.D., Champika K. Soysa, Ph.D., Marc J. Wagoner, Ph.D., and Lori J. Dawson, Ph.D.
The goal of this paper is to present a set of topical and pedagogical considerations for instructors teaching material on sensitive topics with either the primary or secondary aim of addressing prevention. Prevention can be approached as an effort to create changes in an individual's attitudes/beliefs, knowledge, and behavior. Following this framework, classroom content that goes beyond providing information to challenge students' perceptions, preconceived notions, and attitudes can be seen as preventive in nature. Preparing students to work through the same layers of complexity that thoroughly trained and experienced researchers and practitioners struggle with requires particular attention to classroom environment.

WONDERFUL PHILOSOPHIES OF MARY SEACOLE
Kristin Waters, Ph.D.
Accepted for publication (Vol. 12:2 August, 2009) in *Philosophia Africana*. Mary Seacole's 1858 memoir, *Wonderful Adventures of Mrs. Seacole in Strange Lands* is an illuminating recollection of her life that reveals sophisticated observations about race, gender, class, and nation. This paper explores five different accounts of which Seacole is, examined in relation to a set of metaphysical positions: realism, materialist constructivism, and relativism. This essay demonstrates the importance of objectivist metaphysics and argues that Seacole was one of the early writers to explicitly explore the power of objectivist constructivism against racial realism. In the process, the reader learns more about Mary Seacole, the Jamaican hotelier and healer, and also about the ontologies of race.

NEO-BAROQUE SPECTACLE AND THE FEMALE BODY IN THE WORK OF JENNY SAVILLE, LISA YUSKAVAGE, AND JOHN CURRIN
Catherine Wilcox-Titus, Ph.D.
This chapter examines the work of three very successful contemporary figurative painters, Jenny Saville, Lisa Yuskavage, and John Currin, whose paintings depict women with bizarrely exaggerated features. Saville's women are morbidly obese, Yuskavage's girl/women have exaggerated kewpie doll features, and Currin's women have gigantic breasts. These painters seem to express contemporary anxieties about women's bodies. My essay looks for connections between the earlier Baroque period of the seventeenth-century, typified by a preoccupation with the expansive, fleshy women of Rubens and Tiepolo, and our own. Both eras seem to mark the summation and end point of grand ideals and high aspirations. The essay is from the book, *Baroque Tendencies* in Contemporary Art, Cambridge Scholars Press, 2008.

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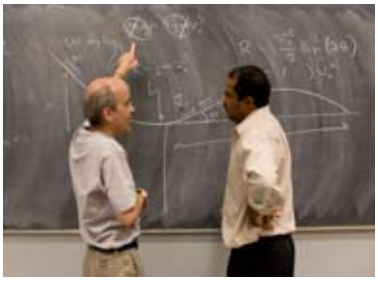
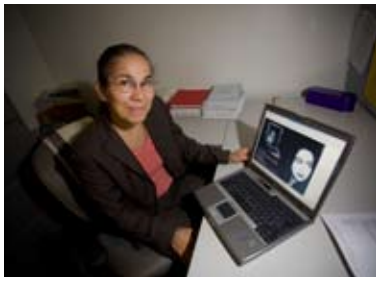

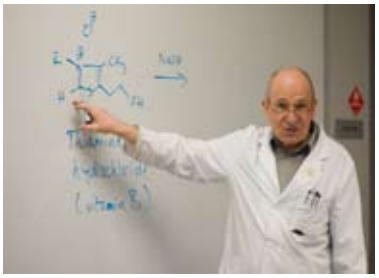



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