

SUNY College at Oneonta

2009 Student Research Day



Tuesday, April 21, 2009

12:30 PM—5:00 PM

Hunt College Union

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Hunt College Union Ballroom



Student Research Day is funded through charitable gifts and grants made to the College at Oneonta Foundation, and is sponsored by the Division of College Advancement, the College Senate Committee on Research, and the Grants Development Office.

Members of the 2008-2009 College Senate Committee on Research:

Kathy Meeker, Chair (Grants Development Office),
Thomas Beal (History), Devin Castendyk (Earth Sciences),
April Harper (History), Geoffrey O'Shea (Psychology),
Randy Lynk (Student Representative), Thor Kasenko (Student Representative)

SUNY College at Oneonta
2009 Student Research Day
PROGRAM

1:00 PM

Keynote Address

Introduction: **Dr. John Relethford**
SUNY Distinguished Teaching Professor, Anthropology Department

Michael Sikirica, M.D. '83

Forensics: An Entity at the Triple Point

Dr. Michael Sikirica '83 is CEO of Forensic Medical Services, and founder and CEO of Forensic Identification & Profiling Laboratory (an independent DNA testing laboratory). He is also the Medical Examiner for Rensselaer County and serves as a coroner's pathologist for several upstate New York counties. Dr. Sikirica received his bachelor's degree in Biology with a minor in Anthropology from SUNY Oneonta, and his medical degree from the SUNY School of Medicine at Buffalo. He completed a general pathology residency at the Berkshire Medical Center in Pittsfield, MA, a fellowship in Forensic Pathology at the Bexar County Medical Examiner's Office in San Antonio, TX, and a second fellowship in Neuropathology at Brown University and Rhode Island Hospital. He previously served as Deputy Chief Medical Examiner for the State of Rhode Island. His talk will examine the state of forensics and its identity and balance in relation to the triple disciplines of science, medicine and the law.

2:00 – 5:00 PM

***Student posters, computer displays
and other exhibits***

SUNY College at Oneonta
2009 Student Research Show

STUDENT PARTICIPANTS

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Amy Aletti	4	Cynthia Gottuso	10
Nicole Allen	13	Theresa Greiner	10,14
Peter Anderson	8	Anthony Grimes	11
Laura Ayers	4	Paige Hamilton	11
Troy Banks	4,6	Denise Hardy	7
Robert Barton	4	Jessica Healy	11
Brian Beckemeyer	14	Liza Hendricks	6
Michael Bergman	27	Caitlin Heuberger	23
Ann Bischoff	11	Brittany Higgins	11
Laura Buzon	11	Kyle Hill	12,16
John M. Byrne	5	Jessica Hoey	12
Vicky Cardoso	5	Courtney Howard	12
Elizabeth Castellon	5	Trisha Hosmer	14
Sean Cavaliere	16	Lauren Howe	15
Kaitlyn Charles	18	Katlyn Hutchings	21
Amber Chapman	18	Camilla Hutson	12,16
Ashley Colegrove	6	Steve Jacobsen	13
Jarrold Constantino	14	Richard Jaworski	14
Clinton Copp	6	Emmon Johnson	13
Brittney Corrigan	6	Kimberly Joy	13
Eric Cross	12,16	Nicholas Juliano	14
Luis Cruz	6	Katherine Karpel	14
Michele Daly	27	Sarah Karas	20
Holly Dame	7	Jaclyn Kassoff	12,16
Carrie Dancesia	6	Tim Kelley	8
Kathryn Derkacz	12,16	Breanne Kempton	14
Darcey DeSpain	7	Rebecca Kennedy	11,12,15,16
Mike DeVasto	7	Olivia Kenyon	19
Luke D'Imperio	8	Madison Kerr	7
Kristin Dorsch	8	Kyle J. LaFever	15
Laura K. Douglas	6,8	Tami L. LaPilusa	15
Asia Dowtin	14	Darryl Lasko	16
Mary Ellen Dunn	14	Elisabeth Levine	12,16
Matt Entwistle	12	Joseph Lewkowicz	16
Kathryn Eyring	6	Katherine Lowell	10
Maureen Fass	9	Alex Lyakhov	14
Jennifer Finn	14	Joseph Lydon	16
Kenny Fisch	14	Kristie Lyons	14
Katie Fox	9	David Marr III	14
Kristen Freda	12,16	Nicole Mash	17
Christopher Fremgen	9	Erik Mason	14,17
Sara Gaudioso	18	Katherine Mendoza	18
David Gaul	9	Josh Merrill	18
Shawn Gillespie	10	Matt Miner	18
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Laurie Mierek.....	5	Rebecca Shea.....	22
Hamza Mohammed.....	6	Tara Smith.....	18
Laura Morton.....	19	Luke Soposki.....	23
Lakeshia Motley.....	16	Elijah Spina.....	23
Idy Neuman.....	19	Arjun Sridharan.....	13
Gwendolyn Nieves.....	23	Chelsie Steinbacher.....	18
Kirsten G. Nunez.....	6	Rachel Stevenson.....	23
Abdul Rahim Nurani.....	19	Peter Stratigos.....	12,16
Ryan Palumbo.....	20	Daniel S. Stich.....	5
Kara Parnett.....	20	Joe Sullivan.....	21
Waylon Partridge.....	20	Sarah Summers.....	23
Natalie Peckham.....	21	Rashpal Suri.....	24
Katelyn Peters.....	18	Ariane Torres.....	24
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Amy Pondolfino.....	21	Dania Valdes.....	18
Miyeon Presky.....	23	Maria Vann.....	25
Karen Prior.....	15	Amanda Vasquez.....	18
Alicia Pucci.....	14	Jessica Vecchione.....	25
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Molly Reed.....	21	Curtis Walker.....	14
Missy Reinheimer.....	21	Denise Ward.....	5
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Guillermo Reyes.....	18	Jennifer Westcott.....	26
Jillian Richards.....	20	Scott Wetmore.....	26,27
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Tracy Allen (Geography).....	21
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Dawn Hamlin (Education Psychology & Counseling)	20
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Les Hasbargen (Earth Sciences)	11,13
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George Hovis (English)	9
Shih-Ming Hu (Human Ecology).....	8,10,21
Karen Joest (Human Ecology)	18
Cynthia Klink (Anthropology).....	13,20
Vicky Lentz (Biology)	22,27
Erik Lind (Physical Education).....	6
Nigel Mann (Biology).....	26
Nicola McEnroe (Biology/Earth Sciences).....	28
Peter Muller (Earth Sciences)	4
Janet Nepkie (Music)	12
Robin Nussbaum (Hunt College Union).....	18
Geoffrey O'Shea (Psychology)	7
William Proulx (Human Ecology).....	12,16
Florian Reyda (Biology)	6,27
David Ring (Economics, Finance & Accounting)	19
Adam Ryburn (Biology)	13
Tony Scafide (Music)	7
John Schaumlöffel (Chemistry & Biochemistry).....	5
Sheila Serbay (Psychology)	21
Dona Siregar (Economics, Finance & Accounting).....	9,19,24
Elizabeth Small (Foreign Languages & Literatures)	25
Gretchen Sullivan Sorin (Cooperstown Graduate Program).....	4
Caridad Souza-Watkins (Women's & Gender Studies/Africana & Latino Studies).....	18
Tatiana Vislova (Earth Sciences).....	4,26
Donna Vogler (Biology)	8,10,28
Fred Zalatan (Biology).....	6,20
Sen Zhang (Mathematics, Computer Science & Statistics)	9

PRESENTATIONS

Student: Amy Aletti (Communication Arts)

Cue Bono? (Who Benefits?): Alcohol and Advertising

Using theories and data, this project examines the message of alcohol advertisements, particularly in regard to sexuality. The presentation considers the way in which these advertisements attempt to persuade, and includes examples of advertisements and results of research conducted by comparing the quantity of alcohol advertisements in men's versus women's magazines.

Student: Laura Ayers

Faculty Sponsor: Gretchen Sullivan Sorin (Cooperstown Graduate Program)

More than Just Home Base: Community Relations Between the Racine Belles and the Residents of Racine, Wisconsin

The Racine Belles, one of the original four teams in the All American Girls Professional Baseball League, played in Racine, Wisconsin from 1943-1950, and were the only women's professional baseball team the city would know. In cities where the All-American Girls Professional Baseball League established solid teams, players and fans formed lasting relationships unknown in other professional sports. This bond helped league teams flourish and changed the lives of both players and fans, creating friendships that continued well after the Belles left home base for the last time. This thesis explores the relationships between the Belles and their fans in Racine; players lived with host families in each community, participated in youth programs, and some found off-season employment in their new "hometown." Community members, in turn, had a strong affinity for "their Belles," even during mediocre seasons. Local game officials, including managers, chaperones, umpires, ball boys, and bat girls created a solid fan base for the Belles and a network for the players within the community. Through interviews with former players, ball boys, bat girls, and other community members, as well as newspaper articles, biographies, and memoirs, the depth of these relationships emerged.

Student: Troy Banks

Faculty Sponsors: Tatiana Vislova, Peter Muller (Earth Sciences)

Comparative Studies of Mafic Dikes in the Northeastern Adirondacks, NY

This study compares geochemical and petrographic characteristics of mafic dikes from three localities in the northeastern Adirondacks: Coughlin Brook, Split Rock Falls, and Rand Hill. Published age data estimate Rand Hill dikes as late Proterozoic, which correlates with the time of the opening of the Iapetus Ocean. The Coughlin Brook and Split Rock Falls dikes are undated. Comparison of these samples suggests that the tectonic event which caused intrusion of dikes was crustal extension over a rising asthenospheric plume, preceding the opening of the Iapetus Ocean. Geochemical and petrographic data show that rocks from Coughlin Brook and Split Rock Falls are transitional basalts, and rocks from Rand Hill are mildly alkaline basalts. Similarities between the Split Rock Falls and Coughlin Brook dikes suggest that they had the same magma source and, thus, were intruded at the same time. Rand Hill dikes plot within the same fields as Coughlin Brook dikes on discrimination diagrams, but consistently demonstrate more alkaline nature on classification diagrams. It is possible that the Coughlin Brook magma was derived by partial melting of the same mantle plume as Rand Hill, but at shallower depths, probably at an earlier stage of the plume ascent.

Student: Robert Barton

Faculty Sponsor: Don Allison (Mathematics, Computer Science & Statistics)

An Extension of Pedestrian Dynamics to Simulate Convergent Crowding

It is a common occurrence in cooperative human behavior to develop crowds in which members congregate towards a common goal. A convergent crowd will be defined as one in which

individuals act collectively to move towards an area of interest. In such a crowd, members tend to strive towards an optimal position, causing individuals in the back of a crowd to surge forward. This can cause individuals in the front of the crowd to be crushed or trampled, which may result in injury or death. Our research involves several improvements to an agent-based approach for pedestrian dynamics, which facilitate the properties of convergent crowding. First, the closer a person gets to his/her intended goal, the more he/she will resist moving from that location. Second, individuals adjust their speed to conform to the average speed of the crowd around them. Third, normal forces are transmitted between individuals in contact with one another. Finally, a measurement of the number and severity of injuries is created. These improvements are utilized in order to create a computational simulation to allow for the observance of emergent behaviors in convergent crowds, which can lead to advances in crowd management and safety.

Students: John M. Byrne, Daniel S. Stich (Biological Field Station [BFS] interns/SUNY Cobleskill)

Faculty Sponsors: John R. Foster (SUNY Cobleskill), Willard N. Harman (BFS)

Hourly Position Data Indicated Substantial Differences in Walleye Movements and Habitat Utilization from Previous Telemetry Studies

While habitat utilization and movements of walleye (*Sander vitreus*) have been studied extensively, previous data have been recorded primarily during daylight hours with sampling intervals of days or weeks. In this study, hourly movements and habitat utilization over a 24-hour period were observed in Otsego Lake, New York using acoustical tags implanted in 14 four- to seven-year-old walleye. Hourly position data indicate that walleye move constantly, resulting in an average movement of 220 m per hour with a cumulative movement of 5,277 m per day. Hourly movements resulted in substantial differences in habitat utilization over what was observed from daily/weekly position data. While significant heterogeneity was recorded among habitat utilization of individuals, most walleye occurred in all lake habitats over a 24-hour period, including shallow weedy areas, rocky drop offs and deep open waters. The utilization of both inshore and offshore habitats differed from most observations made in shallow, warm-water lakes and reservoirs. Hourly position data over an entire 24-hour period provide a much more accurate measure of walleye movements and habitat utilization than daily/weekly position data.

Students: Vicky Cardoso, Laurie Mierek, Matt Rogers, Denise Ward

Faculty Sponsors: Paul Bischoff (Secondary Science Education), John Schaumloffel (Chemistry & Biochemistry)

The Effect of Zebra Mussel (*Dreissena polymorpha*) Concentrations and Time on the Clearing of Chlorophyll *a* from Lake Water

Zebra mussels are an invasive species that have been affecting the ecosystems of our region's lakes and rivers. Research has shown that zebra mussels have the ability to filter large amounts of water, increasing clarity, and ultimately altering the ecological balance of lakes. Using an experimental design where time and zebra mussel concentrations are the independent variables, this study determines the clearing capacity of zebra mussels on chlorophyll *a*, which is present in algal cells. The concentration of algal cells measured in different treatment conditions is measured with a spectrophotometer. Data to be presented include statistical analyses of the results.

Student: Elizabeth Castellon

Faculty Sponsor: Yun-Jung Choi (Human Ecology)

"Sweet Dreams" – A Floral Treasure

This project was part of a research study designed to enrich the intimate apparel sector of the fashion industry. Its purpose was to create a business that would be successful enough to compete with similar retailers, develop a product line, and construct a prototype garment of originally designed, hand painted lingerie. The inspirations for the painted designs were flowers. Lingerie and flowers have similar characteristics; both are soft, delicate items, and are the ultimate

expression of romance. The designs are an abstract interpretation of the inspiration; the end result, an observation of floral images. The type of fabric used to construct the garment was an ivory colored satin. The designs were hand painted on the fabric before pattern pieces were cut out and assembled. The colors in the garment were red, blue, grey, green, black and yellow; these colors were chosen based on the images first observed, and what would appeal to the target market. The dress will successfully appeal to those who value creativity and individualism.

Students: Clinton Copp, Kathryn Eyring, Liza Hendricks, Ashley Colegrove

Faculty Sponsor: Florian Reyda (Biology)

The Acanthocephalan Parasites of Fishes of Otsego Lake

A survey of acanthocephalan parasites from 12 different species of fish from Otsego Lake and a pond at Thayer Farm in Cooperstown, New York was started in September 2008. To date, more than 100 fish of 12 species have been examined for parasites. In several species of fish, many acanthocephalan parasites were encountered. However, acanthocephalans were found primarily in Perch, Bass, and Bluegill. Each of these fish species was infected with adult acanthocephalans in their intestines and/or pyloric caecae. Identification to species is needed to help us understand potential effects of these parasites on the lake ecosystem and their hosts. The study of parasites in these fish may lead to discoveries and information on host susceptibility to parasites and host-parasite interactions.

Students: Clinton Copp, Hamza Mohammed, Carrie Dancesia

Faculty Sponsor: Fred Zalatan (Biology)

Environmental Sequence of Microbial DNA in Pumpkin Seed Fish of Otsego Lake

Microbes are vital to digestion of food in almost all species. In our research we have taken a sample of small intestine from a Pumpkin Seed fish from Otsego Lake. We have been working to isolate bacterial DNA from the intestinal sample, and to amplify the number of copies of a specific region of the bacterial DNA using polymerase chain reaction (PCR). The amplified DNA will then be sequenced and compared to a database of bacterial sequences. This procedure, known as environmental sequencing, allows for characterization of bacterial species in a sample without having to grow and isolate the bacteria in the laboratory. Our results may lead to a better characterization of Pumpkin Seed fish digestion and metabolism.

Students: Brittney Corrigan, Erika Reisman, Troy Banks

Faculty Sponsor: Paul Bischoff (Secondary Science Education)

Comparing the Abundance of Naked Amoeba in Different Soil Systems

This project is being completed in partial fulfillment of SCIN 390-Interdisciplinary Science Capstone. Naked amoebae are single-celled protists that are important in soil systems because they break down organic matter, feed on and regulate bacteria populations, and are themselves fed on by other single-celled and multicellular organisms. The purpose of this study is to determine and compare the populations of naked amoebae that are present in soil systems impacted by detritus from different tree species and mosses. Methods include developing naked amoebae cultures, microscopic observations and morphotype classifications, and soil chemical tests. Findings and statistical analyses will be presented.

Students: Luis Cruz, Laura K. Douglas, Kirsten G. Nunez

Faculty Sponsor: Erik Lind (Physical Education)

A Campus-wide Investigation to Determine College Students' Awareness of Current Dietary and Physical Activity Guidelines

A brief summary of the American College Health Association's National College Health Assessment II survey highlights some discrepancies regarding dietary and physical activity health behaviors. Specifically, one-third of respondents reported being overweight or obese, one-half

reported trying to lose weight by either dieting (35%) or with exercise (52%), and nearly two-thirds reported either having received or wanting to receive information on nutrition and physical activity. Yet, using exercise as an example, only a fraction of respondents reported meeting the minimum dose of exercise for either moderate (9.2%) or vigorous-intensity (11.3%) physical activity. Thus, there seems to be a disconnect between what students are reporting and how they are behaving with respect to their expressed goals. This may be due to an unawareness of current dietary and physical activity guidelines. In response to this apparent divide, the proposed study will attempt to ascertain the current practices of college-aged students' dietary and physical activity behaviors, patterns, and knowledge of such recommendations, using a brief electronic survey sent via campus email. Based on the results, programs and instruction may be developed and/or modified to better educate students on the immediate and long-term health benefits of proper diet and physical activity.

Students: Holly Dame, Madison Kerr, Kayla Young

Faculty Sponsor: Tony Scafide (Music)

The Rise of Indie

This research project is a study of an independent band and their path to achieving recognition in the music industry, presented as a video ethnography of the efforts of the band. Interviews with band members and informed persons within the field provide insight into the music industry and what it takes for an independent band to achieve success.

Students: Darcey DeSpain, Denise Hardy

Faculty Sponsor: Geoffrey O'Shea (Psychology)

Implicit and Explicit Mechanisms in Cross-Language Learning

Past research has found that cross-language facilitation occurs in short-term, but not long-term, memory tasks. One reason for the lack of cross-language facilitation in long-term memory tasks is the semantic interference generated by the verbal stimuli used in these tasks. The present experiment examined cross-language implicit serial learning, using a modified Hebb Digits Task that requires immediate recall of a string of nine digits and long-term recall of a recurrent string of nine digits. Results of Experiment 1 demonstrated transfer of learning from a repeated digit string presented in Spanish to the same string presented in English, and showed that this learning was independent of participants' development of explicit awareness of the repeating digit string. These results are discussed in terms of the role of conceptual processes in the acquisition and retention of serially ordered information. Furthermore, the application of Jacoby's (1991) process dissociation procedure introduces a new method of assessing awareness of sequence repetition in the Hebb Digits task.

Student: Mike DeVasto

Faculty Sponsor: Devin Castendyk (Earth Sciences)

Exploring the Subsurface with Electrical Resistivity

Geologists can explore below the land surface by inputting an electric current into the ground and measuring slight changes in voltage between two points. Some Earth materials will pass an electrical current more easily than other materials, depending on their composition. This property is called resistivity. By measuring changes in voltage, resistivity can be calculated, and the composition of the material can be interpreted. This geophysical technique is termed Electrical Resistivity (ER). ER is commonly used for detecting ground water, buried landfills, contamination plumes, and several other types of objects at depth.

Students: Luke D'Imperio, Peter Anderson, Tim Kelley

Faculty Sponsor: Hugh Gallagher, Jr. (Physics & Astronomy)

Coherent Ionospheric Doppler Receiver (CIDR) Observations of Mid-Latitude Total Electron Content

Solar radiation and energetic particle precipitation from near-Earth space create an electrically conducting layer in the Earth's upper atmosphere (100 to 1,000 km above the Earth's surface) known as the ionosphere. The ionosphere is highly variable over a wide range of spatial and temporal scales. In order to characterize the variations in ionospheric electron density, an array of coherent ionospheric Doppler receivers (CIDRs) has been deployed in the Northeastern United States. The CIDR measures Doppler shifts on 150 MHz and 400 MHz signals from beacons on a series of Low Earth Orbiting satellites (LEOs) as these signals transect the ionosphere. The difference in the Doppler shifts of the two signals referenced to a common frequency is used to determine the change in the integrated number of electrons between the satellite and the receiver (known as the total electron content, or TEC). In this poster, we analyze the change in TEC (dTEC) measurements from the Oneonta and Wallops Island CIDRs to infer the TEC as a function of latitude. We discuss the efficacy of this analysis for resolving large-scale latitudinal structures in TEC such as the mid-latitude.

Student: Kristin Dorsch

Faculty Sponsor: Donna Vogler (Biology)

Native and Naturalized Turf Species Suitable for Use on Airfields Managed for Wildlife Hazards in the Northeast

Habitat management is an important component of an integrated approach to reducing wildlife hazards on airfields. This research examines alternative turf species that are either native or naturalized in the Northeastern U.S., which tend not to be attractive to wildlife due to their low palatability and seed production. These species may have uses on airfields, golf courses and in residential areas where geese and other wildlife are in conflict with humans. While the low seed productivity in some native species is a deterrent to wildlife, this same trait is associated with poor establishment rates. Our goal is to find the most successful means of germinating these species using a hydroseeding application, so they can be utilized as part of an airfield vegetation management design. Our data will show the evaluation of plant vigor conducted under controlled greenhouse conditions. Some of the species to be tested include Pennsylvania Sedge (*Carex pennsylvanica*), Little Bluestem (*Schizachyrium scoparium*), Crinkled Hair Grass (*Deschampsia flexuosa*), Poverty Oats (*Danthonia spicata*), and Purple Love Grass (*Eragrostis spectabilis*). By evaluating each species for its suitability for hydroseeding, germination and early vigor, we will be able to make recommendations for hydroseeding native species at airfields managed to reduce wildlife hazards.

Student: Laura K. Douglas

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Fat Substitution in Brownies

Since America has an ever-growing obesity problem, it would be advantageous to replace fat in one of our favorite treats – brownies – to create a healthier snack that we can still enjoy. By replacing the oil in brownies with pumpkin, we were able to not only create a snack with less fat, but also keep a similar taste. In the end, the brownies were also healthier overall because of the added carotenoids in pumpkin. Carotenoids are full of antioxidants, which have been known to improve overall health and vision, slow aging, clean arteries and help ward off cancer. The results showed that the brownies with 50 percent replacement were the most enjoyable and were the greatest success. With this data we can continue to create healthy snacks in the future by replacing oils and fats in other baked goods with pumpkin.

Student: Maureen Fass

Faculty Sponsor: Sven Anderson (Art)

Plastic Voyeurs: The Secret Lives of Dolls

The series “The Secret Lives of Dolls” (SLD) is intended to be a sub-category in the broader view of its parent project, “Plastic Voyeurs” (PV), and will be comprised of roughly 50-100 photographs, digital paintings and other media. While the purpose of PV was to provide social commentary and criticism on the marketing of sexuality through advertising and entertainment, SLD takes the idea further by adding a partner and satirizing the staged erotic scenes we often see in advertising. The viewer will experience discomfort based on the idea that they are intruding or spying on an intimate moment between two people or, in this case, Asian ball-jointed dolls. Most would not think twice when seeing two human models in the same situation in advertising; however, it is the artificiality of the dolls which sets the viewer on edge, and also points to the artificiality of the idea of commercialized sex and sexuality.

Student: Katie Fox

Faculty Sponsors: George Hovis (English), Helga Berliner (Women's & Gender Studies)

It's Elementary, My Dear Reader: Learning the Methods of Mystery Writing

I researched mystery writing and wrote a novelette based on the methods and general information discovered. The novelette is about a woman who moves into a town that is literally haunted by the kidnapping of a brother and sister. Throughout the novel, Reba Donovan researches the circumstances of the kidnapping in order to rid herself of the spirit of one of those children, and ultimately finds out more than she bargained for.

Student: Christopher Fremgen

Faculty Sponsor: Sen Zhang (Mathematics, Computer Science & Statistics)

Providing Grass-root Understandings of a Given Search Term

This project examines the ability to reflect on "grass-root" understandings of common questions such as "What is math?" or "What is a teacher?" These grass-root answers come from anonymous, average human beings who tend to share their understandings to questions in colloquial language on the Internet. They, therefore, reasonably assume that these answers are more accessible to their average peers than the answers from ad hoc authoritative sources such as answer.com (a vote-soliciting website) or Wikipedia.com (an audited collaborative website), for example, which usually demand a certain level of expertise of users in the investigated questions. The utility provides a user interface to facilitate question construction, automatically redirects the questions to Google, and based on Google's feedback, visits every page containing answers. Each crawled page is examined on the fly to identify and extract every sentence containing the key term. After all possible answers have been extracted, duplicate or invalid answers will be filtered out, and the answers will be sorted based on nouns in common. Further, we provide an option to get images based on the search; and both answers and pictures are automatically put into a PowerPoint presentation for the user to keep.

Student: David Gaul

Faculty Sponsor: Dona Siregar (Economics, Finance & Accounting)

Bank Internal Capital Markets

The internal capital market theory as laid out by Rose and Talley (1984) concerns the internal financial transactions of bank holding companies (BHCs) that have multiple subsidiaries, with at least one being a commercial bank. In a BHC there may be differences in marginal costs (MC) and revenues (MR) among the affiliate firms, creating a profitable opportunity for the parent company. With the goal being the maximization of consolidated profits, the holding company will act to transfer funds to the relatively more profitable subsidiary. By allocating funds from subsidiaries with low marginal costs to subsidiaries with high marginal revenues, the BHC can increase total profits. This will be done until the subsidiaries are at the same equilibrium level of

MC and MR, where there are no longer any forces to transfer funds between affiliates. The 1999 Financial Services Modernization Act officially allows the integration of banking, securities and insurance services. It repealed the restriction of the 1993 Glass-Steagall Act, which prohibited commercial and retail banks from performing other financial services. This new freedom has led to the proliferation of financial holding companies (FHCs) whose subsidiaries perform many types of financial services. Previous studies have been performed on the transfer of capital and assets between subsidiaries, but the recent changes in the structure of the industry, as well as of the individual FHCs, have led to the need for a study on fund transfers between FHC affiliates. This study may lead to discovering what kind of capital cost efficiencies FHCs can attain by allocating funds between multiple banking subsidiaries, in addition to subsidiary firms that deal in other financial services. In short, what are financial conglomerates doing to perform their role of financial intermediation and allocate resources to their most productive uses?

Student: Shawn Gillespie

Faculty Sponsor: Donna Vogler (Biology)

Life History and Genetic Diversity of *Hedyotis cookiana*, a Globally Endangered Plant

Hedyotis cookiana is an endangered plant native to Hawaii. This project involves establishing basic life history characteristics, as well as the extent of genetic diversity, within this species. Another closely related species, *Hedyotis haupuensis*, is being studied in a similar fashion. Seeds from both plant species have been planted and germinated in the SUNY Oneonta Biology Department greenhouse. Several indicators of vigor and fitness have been documented for the seedlings. These include germination rate, germination time and seedling survival. Tissue samples have not been taken because the plants have not yet reached an adequate size. With luck, preliminary genetic analyses will be performed before the end of the current semester. The maternal tissue of the seed capsules has been stored and will also be utilized in the genetic analysis of inbreeding depression. In addition to the seedlings in the greenhouse, several dozen seeds are being germinated under sterile conditions. This alternative method is being assessed for its effect upon germination rates. The project has been delayed somewhat because of the extended germination times of the plant species, but should continue more smoothly now that the plants are healthy and growing.

Student: Cynthia Gottuso

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Acceptability of Drop Cookies Prepared with Okra Gum as a Fat Substitute

Currently, approximately 127 million adults in the U.S are overweight, 60 million are obese, and nine million are severely obese. This research will offer insight into the feasibility of replacing bakery product fat with okra gum. If acceptable to potential consumers, okra gum offers a new method for food service professionals and food producers to improve the nutritional value of their bakery products and help in improving the nation's obesity issue.

Students: Theresa Greiner, Katherine Lowell

Faculty Sponsor: Charlene Christie (Psychology)

General Knowledge Assessment

This project tests the confidence the average student has in filling out a Scantron answer form when the correct answers form (or do not form, as in the control condition) a zigzag pattern on the Scantron. This experiment is designed to go against what students have been told in the past, and to test their confidence in their answers when the answers form a pattern. We anticipate that the students' confidence in their answers will correlate with whether or not they follow the pattern and whether answer patterns do make a difference in answer selection and confidence in one's answers. We asked 100 students to answer a 40-question multiple-choice test constructed of questions from IQ-style tests, as well as general knowledge questions that SUNY Oneonta students should know the answers to. The questions start off easy and gradually get harder; for

the variable group, after question 30 the answers no longer form a pattern. The test is scored according to whether participants answered the questions correctly and whether incorrect answers after question 30 followed the pattern. We hypothesize that students will follow the pattern as the difficulty increases (and confidence in one's answer decreases), even when the correct answer does not conform to the pattern.

Student: Anthony Grimes

Faculty Sponsor: Les Hasbargen (Earth Sciences)

An Investigation of Sediment Entrainment Theories with an Emphasis on Grain Shape Analysis

Current sediment transport mechanics focus on variables that describe the movement of individual particle grains in gravel bedded streams. Lacking in these models is a shape variable that would differentiate between the transport rates of spherical shaped grains and particles that are more angular. Previous literature and investigations describe particle transport as the result of size, fluid velocity and density, but not shape. Shields Theory describes the threshold for particle motion using grain density and diameter, fluid density, critical shear stress, and the thickness of the laminar sub layer. While Shields Theory takes into account grain size, there is as of yet no established threshold criteria for non-equant shaped grains. Shields' Criterion also does not include a grain-to-grain shielding index, which characterizes entrainment in bedrock channels and alluvial channels. Spherical particles are more aerodynamic and yield a faster settling time than a clast that exhibits flat surfaces. Individual drag and lift properties are also affected by the shape characteristics of individual grains in bed substrate, and influence flow around subsequent grains downstream. Future research includes an in-depth examination of stream bed conditions required for entrainment of various shapes and extensive field research, including observation of clast movement.

Students: Paige Hamilton, Rebecca Kennedy, Ann Bischoff, Brittany Higgins

Faculty Sponsor: Lawrence T. Guzy (Psychology)

Unexpected Speed Changes as a Function of a Mystery Hill on West Street, Oneonta, NY

A "mystery hill" is a place where the surrounding terrain gives the illusion that you are traveling uphill, level, or downhill when you are not. When entering a mystery hill, drivers may unconsciously increase their speed, thinking they are going uphill, when in actuality they are going downhill. As a result, encountering a mystery hill would cause an unexpected and possibly unsafe change in speed. Research has focused on the amusing aspects of misperceiving the profile of the road, but unexpected speed changes associated with these hills have not been investigated. Twelve subjects volunteered for this experiment, conducted at a section of the roadway near campus containing a mystery hill. The subject sat in the passenger seat of the car, which traveled at twenty-five mph. Twelve trials were administered, six with vision of the road ahead and six with vision occluded. At four specific points, the subjects were required to identify the profile of the road, either as they approached (with vision) or after they entered that section (with vision occluded). If the profile of the road is misidentified and coupled with unsafe changes in speed, these results would have major significance in transportation safety.

Students: Jessica Healy, Laura Buzon

Faculty Sponsor: Jeffery P. Dennis (Sociology)

Survey on Abusive Relationships

Why do people stay in relationships that are destructive, emotionally unstable, or even abusive? Do they fear retribution from their partners, are they worried about being labeled "victims," or have they been socialized to believe that one should "stick it out," no matter what? We conducted a survey of approximately 300 on-campus students to determine the factors that contribute to staying with an abusive partner

Students: Jessica Hoey, Matt Entwistle

Faculty Sponsor: Paul Bischoff (Secondary Science Education)

Effects of a High Magnetic Field on the Growth Rate of Primary Roots of *Lactuca sativa*: Including a Comparative Study of the Gravitropic Curvature and Physiology

The Earth has a significant magnetic field with the ability to deflect intense solar wind, guide animal migration, and direct anaerobic bacteria to their desired environment. Similarly, there have been several reports on the effects of the Earth's magnetic field on plant materials. These reports are based on research experiments conducted to determine whether or not a magnetic stimulus, such as the Earth's magnet field, has an effect on plant material. Considering the results of previous research, and lack thereof, many research questions have been shaped. To answer these questions we created a fifteen-day-long experiment analyzing and quantifying the effects of varying magnetic fields on the root growth of *Lactuca sativa*. A directional hypothesis has been formulated as a result of scholarly research and scientific questioning: high magnetic field strengths will significantly change the roots of *Lactuca sativa* in comparison to the Earth's magnetic field in relation to root lengths, gravitropic curvature, and physiology.

Student: Courtney Howard

Faculty Sponsor: Janet Nepkie (Music)

Alternative Revenue Streams for Songwriters and Musicians

This project examines the potential revenue streams that are available to songwriter/artists who have recorded their music and are looking for ways to make a profit from that recorded music, aside from traditional hard copy CD sales. The revenue streams covered in this research include licensing music for use in film and television, video games, and advertisements; licensing and distributing music for digital and mobile sales; and entering into branding deals with companies that wish to use an artist's music and image to promote products. The project and presentation are designed to help educate songwriter/artists about ways in which they could earn a living from their work, despite the recorded music industry's decline in profitability.

Students: Camilla Hutson, Peter Stratigos, Rebecca Kennedy, Kristen Freda, Elisabeth Levine, Kyle Hill, Eric Cross, Jaclyn Kassoff, Kathryn Derkacz

Faculty Sponsors: William Proulx (Human Ecology), Tom Benoit (Athletics), Lawrence T. Guzy (Psychology)

Hydration Status: Comparison of Osmolality of Saliva, Bioelectrical Impedance Spectroscopy, and Urine Refractometry in College Athletes

Problem: Eighty-two (n=82) Division III athletes were recruited for an IRB-approved study comparing three hydration techniques. Swimmers (n=28) and wrestlers (n=54) had their hydration status measured using: 1) freeze point depression osmolality of saliva with a Fiske 210 osmometer, 2) bioelectrical impedance spectroscopy (BIS) with an Impedimed, and 3) urine specific gravity refractometry with an Atago PAL 10S. **Method:** Subjects were alerted that a urine sample would be required at the start of the testing session. The freeze point depression osmometer measured the latency in freezing 20 μ l of saliva to determine the level of hydration. BIS takes measurements at 256 different frequencies and uses mathematical modeling to calculate the resistance of the flow to electrical current through the body, at zero and infinite frequencies. It measured intracellular, extracellular, and total body water. Each subject had all three hydration tests completed during a 30-minute test session. **Results:** Pearson Correlation Coefficients were calculated among the three techniques. Osmolality of saliva was unrelated to other measures. Urine specific gravity was negatively correlated with BIS total body water, intracellular fluid, and extracellular fluids.

Student: Steve Jacobsen

Faculty Sponsor: Adam Ryburn (Biology)

Variable Sunlight Effect on Wild Apple Tree Fruit Production

Trees were grouped according to amounts of sunlight received daily. Three groups were formed: trees which were receiving maximum, moderate, and poor sunlight exposure. Each group contained four trees to be studied. For each grouping, observations were made of fruit growth and production; samples of fruit were measured and compared, and approximate overall production numbers were recorded for each group. Results for this project are preliminary. Variables taken into consideration included soil and drainage characteristics, as well as inconsistencies in weather patterns, and unforeseen events. In order to generalize soils, fertilizers have been applied and will be active in next season's fruit production. Research into the fruit production of these selected wild apple trees will continue, with additional data collection leading to more accurate results.

Students: Emmon Johnson, Arjun Sridharan

Faculty Sponsors: Les Hasbargen (Earth Sciences), Cynthia Klink (Anthropology)

Combining Geophysics and Computer Science to Visualize the Subsurface

A ground penetrating radar (GPR) study of an archeological dig site located at the Pine Lake Hartwick Environmental Campus in Davenport, New York, was performed in the summer of 2008. The archeological site is located on a river floodplain sandwiched between Charlotte Creek and the Pine Lake kame moraine. Prior excavation discovered archaeological artifacts that document intermittent hunter-gatherer activity at the site during the Holocene. Our project created a computer program (GPRprofile) to visualize the subsurface using parallel GPR transects. GPRprofile displays the data in a 2D map and profile view which allows the user to trace features and place them in the study area. GPRprofile is flexible and allows the user to change the map and GPR profile imagery to any global location. This light-weight data visualization tool provides easy access to subsurface features and facilitates interpretation of subsurface stratigraphy. For instance, gravel bars and buried channels can be readily traced in the subsurface of our study area. When excavated areas within the site are compared to a map of the buried channels, it is readily apparent that the Native Americans settled on the gravel bars. Thus, GPRprofile will help target future excavations over other buried gravel bars.

Students: Kimberly Joy, Nicole Allen

Faculty Sponsor: Steven J. Gilbert (Psychology)

Isolated Sleep Paralysis in a College Sample

We report the results of two studies of the relationship between Isolated Sleep Paralysis (ISP) and a variety of predictor variables among college students. The studies were conducted on campus in the spring and fall of 2008, and involved interviews with students who reported symptoms of ISP, and provided measures of anxiety (STAI), anxiety-sensitivity (ASI), fear and worry about ISP, other sleep disorders, reactions to every day hassles (HASSLES), and mood (PANAS). Results showed that, compared with students who don't experience ISP, students who do reported significantly more negative affect (both studies), and higher levels of anxiety sensitivity and chronic drowsiness (Study 2). An exploratory Canonical Correlation performed on ISP subjects in Study 2 showed a significant Canonical Correlation (.844) between a latent variable reflecting ISP concerns (with heaviest loadings, respectively, from worrying about future episodes, and the frequency of episodes) and a latent variable reflecting Negative Well-being (with heaviest loadings, respectively, from everyday hassles, anxiety, and the experience of other sleep disorders). Replications with additional variables and a larger sample size should be undertaken.

Students: Nicholas Juliano, Richard Jaworski, Jarrod Constantino, Kenny Fisch, Trisha Hosmer, Breanne Kempton, Mary Ellen Dunn, Alicia Pucci, Curtis Walker, David Marr III, Brian Beckemeyer, Alex Lyakhov, Erik Mason, Asia Downtin, Christopher Gorman, Ryan Pettus, Jennifer Finn, Travis Visco
Faculty Sponsor: Richard Grimaldi (Earth Sciences)

The Ongoing Progress of the SUNY Oneonta Weather Center

The SUNY Oneonta Weather Center continues to fulfill its weather broadcasting initiative. Having logged over 325 broadcasts on WONY, involving 26 students, the Weather Center looks to expand its operations onto the streaming video sector. This effort is supported by guidance from the Teaching, Learning and Technology Center (TLTC) and the recent acquisition of a movie camera, green wall, and chromakey, now set up in the meteorology lab in Science Building I. Our recently developed website (www.oneonta.edu/academics/weathercenter) is designed to serve as the hub for our broadcasting work as well as provide for student e-portfolios and useful weather forecasting tools. The Weather Center's latest challenge involves planning, directing and filming a weekly weather show, to be called *Long Island Weather*, with the intention of disseminating a video product in high school science classes in and around Long Island. We hope to bring this vision to reality during the fall semester of 2009. Our past efforts and future endeavors will be presented by Nick Juliano and Richard Jaworski at the American Meteorological Society's Broadcast Meteorology Conference in Portland, OR, in June 2009. Until then, the twice-daily audio podcasts, webpage development, and related video podcasting efforts will continue.

Students: Katherine Karpel, Theresa Greiner
Faculty Sponsor: Steven J. Gilbert (Psychology)

The Relationship Among Measures of Field Dependence/Independence

In the past, the cognitive style dimension of Field Dependence/Independence has been measured through two traditional tests: the Physical Rod and Frame and the Pencil & Paper Embedded Figures Test. Our goal was to devise a measure of Field Dependence/ Independence that does not require a dark room and cumbersome special equipment. To do this, we created a Multiple-Choice Rod & Frame PowerPoint slide test that could be administered to a group in a normal, dimly lit room; subjects view a series of frames containing rods, with the task of locating the single rod that is vertical. We also created a Computer-Driven Virtual Rod & Frame test to mimic the Physical Rod and Frame. Finally, we administered two individual difference inventories, potentially related to Field Dependence/Independence: the Analytic-Holistic scale (Choi, Koo & Choi, 2007), and a Locus of Control scale (Levinson, 1972). All of the tests and scales were administered to 32 students in two sessions. Results showed that Field Dependence, as measured by the Multiple-Choice Rod & Frame, correlated significantly with Field Dependence as measured by the Virtual Rod & Frame (.464, $p = .004$), the Physical Rod and Frame (.302, $p = .046$), and Embedded Figures (.508, $p = .001$). In addition, being female (.345, $p = .027$) and endorsing the Holistic attribute of compromise over conflict in the face of contradictions (.528, $p = .001$) were related to Field Dependence. Future research will replicate these findings with a larger sample of subjects, and incorporate additional individual measures.

Students: Breanne Kempton, Trisha Hosmer, Jennifer Finn, Kristie Lyons
Faculty Sponsor: Richard Grimaldi (Earth Sciences)

Radiation Inversion Structure in the Vicinity of Oneonta, NY during Autumnal Fog Events

The Susquehanna River valley is occasionally prone to radiation fog during autumn. These early morning fog events tend to occur beneath a shallow radiation inversion, in which the coldest air is allowed to settle near the surface. Radiation inversions typically occur in association with high pressure and clear and calm nights. Cloud-free conditions allow for infrared radiation to efficiently escape from the near-surface layer, establishing the radiation inversion, while the stillness of calm air prevents the mechanical mixing of the near-surface cold air and the overlying, relatively warmer layer. Evaporation from the river and/or from moist ground surfaces

adds water vapor to the air and enhances the occurrence and density of fog. The understanding of such processes allows for the anticipation of morning fog events one to three days in advance. During September and October mornings, when fog was forecasted, a team of four students deployed into the field at various elevations around Oneonta with temperature and dewpoint sensors in order to construct vertical profiles of moisture and potential temperature. The results show that the potentially warmest and driest air tends to reside at the highest elevations, near College Camp, while potentially cooler and near-saturated air is located near the river, downtown, and in residential areas. These observations are in agreement with environmental conditions which characterize a classic radiation fog event.

Students: Rebecca Kennedy, Lauren Howe, Karen Prior

Faculty Sponsor: Lawrence T. Guzy (Psychology)

The Somatogyral Illusion (Graveyard Spin) as a Function of Time of Day and Two Different Assessment Techniques

The Somatogyral Illusion is a form of spatial disorientation in which a pilot steers the aircraft into a spin. If the problem is noticed and the pilot directs the aircraft out of the spin, the pilot may now believe he or she is spinning in the opposite direction (the illusion). If relying on vestibular inputs and not the instruments, the pilot will return back to the original spin. **Problem:** We examined whether there is a difference in the magnitude of the illusion depending on testing in the a.m. vs. p.m., and used two techniques to assess the Somatogyral Illusion. In one, the subjects rotated a knob to cancel all perceived rotations immediately after exposure to a rotating chair for 24 seconds; in the second, two subjects gave a running commentary as to their perceived speed of rotation with the chair stopped, using a six point rating scale. **Method:** Thirteen participants attended three sessions. **Results:** Using the control knob, the subject placed the chair in the same rotational direction for the entire trial. Using the running commentary, the illusion decreased linearly and dissipated after a 25-second period. No difference was found between a.m. and p.m. testing. **Discussion:** Implications of these findings will be discussed.

Student: Kyle J. LaFever

Faculty Sponsor: Joseph Chiang (Chemistry & Biochemistry)

Methods of the Synthesis of Carbon Nanotubes

Carbon nanotubes are noted for having numerous unique properties, such as exhibiting extraordinary strength and conducting characteristics as well. In addition, carbon nanotubes are leading the way towards new technological breakthroughs and advancements in research and development. This project focuses on the various methods of synthesizing carbon nanotubes. The following list of commonly known methods of synthesizing carbon nanotubes will be researched extensively: laser vaporization of a carbon target, electric arc discharge of graphite, the Chemical Vapor Deposition (CVD) method, laser ablation, quartz zone sublimation of carbon, and the vaporization of carbon in the presence of catalyst (Fe, Ni, Co, etc. or alloys such as FeRu). Following in-depth research regarding the various methods of synthesizing carbon nanotubes, one specific method will be chosen and attempted in the laboratory environment.

Student: Tami L. LaPilusa

Faculty Sponsor: Jeffrey Heilveil (Biology)

Mapping the Distribution of *Cardisoma guanhumi* Latreille (Decapoda: Gecarcinidae) across Andros Island, Bahamas

The blue land crab (*Cardisoma guanhumi* Latreille) is an economically and biologically important species on Andros Island, Bahamas. Remote human living conditions cause the blue land crab to be heavily harvested as a food and income source on an annual basis, with peak collection during the spring spawn. No formal studies have examined the distribution of the blue land crab on Andros Island or the effects of voluminous harvesting of crab populations. The main goal of this project is to travel to Andros Island, Bahamas during the annual spawn and survey

inaccessible regions where the blue land crab is likely to exist. A map of the population distribution will be generated. This map will serve as a basis for further research to examine the number and health of *C. guanhumi* populations via a population genetics study to be performed as a SUNY College at Oneonta Master's degree student starting in fall 2009 under the direction of Dr. Jeffrey Heilveil.

Students: Darryl Lasko, Lakeshia Motley

Faculty Sponsor: Yun-Jung Choi (Human Ecology)

Eco Chic

This project explores how to build a completely eco-friendly clothing store, eliminating the need for factories and chemically treated fabrics. We are experimenting on naturally dying fabrics using salt and vinegar as activators to hold color from berries and plants, with the goal of being as environmentally friendly as possible. Only natural fabrics, plants and berries, and 100 percent recycled materials for store fixtures, gift bags, boxes, receipts, and anything else will be used (including cost-reducing light bulbs for store lighting). Everything will be hand-made in the rear of the store without the use of factories, as they pollute the air. We are researching every detail to ensure no harm to the environment, and hope to set an example for new stores.

Students: Elisabeth Levine, Kyle Hill, Eric Cross, Jaelyn Kassoff, Kathryn Derkacz, Camilla Hutson, Rebecca Kennedy, Peter Stratigos, Kristen Freda

Faculty Sponsors: William Proulx (Human Ecology), Lawrence T. Guzy (Psychology), Tom Benoit (Athletics)

Comparison of Skin Folds and Bioelectrical Impedance Spectroscopy with Air Displacement Plethysmography in College Athletes

Eighty-two (n=82) Division III athletes were recruited for an IRB-approved study comparing three body composition estimation methods. Swimmers (n=28) and wrestlers (n=54) had their body composition measured using 1) a three-site skin-fold (SF) test, 2) bioelectrical impedance spectroscopy (BIS), and 3) air displacement plethysmography (ADP). SF methodology measures subcutaneous fat thickness with calipers at standard sites, and uses these measurements to estimate total body fat percentage via an equation. ADP is the practical gold-standard in body composition analysis, and estimates body composition from body density. BIS takes measurements at 256 different frequencies and uses mathematical modeling to calculate the resistance to the flow of electrical current through the body. Each subject had all three body composition tests completed during a 30-minute session. Results of this study indicate that estimation of body composition using SF was more closely correlated with ADP than BIS.

Student: Joseph Lewkowicz

Faculty Sponsor: Paul French (Physics & Astronomy)

Video-Based Motion Analysis: Lens Distortion Reduction

In the context of measuring motion using digital video, lens distortion is often the major source of error. A new approach has been developed that focuses on reducing lens distortion before the video is produced, rather than correcting for it at the point of analysis. The method involves recording simulated motion using various zoom levels of the video camera, thus determining the optimum zoom level for a given experiment. Preliminary results indicate substantial error reduction in the measurement of velocity and acceleration components for simulated ideal projectile motion.

Students: Joseph Lydon (BFS intern), Sean Cavaliere (Fisheries & Wildlife, SUNY Cobleskill)

Faculty Sponsors: Mark D. Cornwell, John R. Foster (BFS/SUNY Cobleskill), Thomas E. Brooking (BFS/Cornell Biological Field Station), Willard N. Harman (BFS)

Catch Per Unit Effort Measures of Abundance Overestimate Otsego Lake, NY Walleye Population

Because they require less effort and expense, fisheries researchers and managers commonly use measures of fish abundance based on catch per unit effort rather than on fish population estimates. In this study the adult walleye population of the 1711-ha Otsego Lake, was determined through mark and recapture, and the resulting estimate of density (walleye/ha) was compared to standard gill net and electrofishing measures of catch per unit effort. Spawning walleye were trap netted at five locations in April 2008 and marked with a dorsal fin punch and visible implant elastomer, and recaptured in May using boat electrofishing and in September by NYSDEC experimental gill net survey. Catch per unit effort as measured by spring boat electrofishing (24.6 fish/hr) and gill netting (11 fish/net) following the standard percid sampling manual, indicate that Otsego Lake's walleye population was one of the highest in New York State. However, Bailey modified Petersen mark-recapture estimates (5338 fish) utilizing electrofishing data and Chapman modified Petersen estimates (8726 fish) from gill net data gave a density range of 3.1-5.1 walleye per hectare, extremely low compared to walleye densities measured at other New York lakes.

Student: Nicole Mash

Faculty Sponsor: Mary Ann Dowdell (Human Ecology)

Healthy Preschool Intervention

The epidemic of childhood obesity is continuing to rise, with a significant amount of children consuming foods that may cause detrimental health consequences in their future. A needs assessment was conducted at the K & N Ellis Childcare and Learning Center, located in Binghamton, New York. After careful analysis of the results, the main goals of intervention were to: 1) increase parent awareness of child nutrition, 2) increase children's acceptance of a variety of healthy foods, and 3) improve the menu/snacks at the daycare. The intervention consisted of presenting parents of the daycare children with weekly nutritional handouts providing nutrition tips and information surrounding specific groups of the food pyramid (only the dairy, fruit, vegetable, and grain group were used). In addition, a taste test was set up for the preschool children, re/introducing them to healthy foods. Following the intervention, an outcome assessment was developed, to determine if the intervention was successful. Parental and legal guardian knowledge proved to increase when the results of a questionnaire containing questions referring to the food pyramid were analyzed. In order to determine if introducing children to healthy food impacted their food intake, a comparison of plate waste was conducted between the intervention classroom and a control classroom. The intervention group showed a decrease in the amount of plate waste when compared to the control classroom.

Student: Erik Mason

Faculty Sponsor: Todd Ellis (Earth Sciences)

Alterations in Earth's Energy Budget Due to Climate Change

General Circulation Model (GCM) data suggest that the amount of precipitation associated with common mid-latitude storms will increase in the future. Such increases in precipitation should also be accompanied by an increase in kinetic energy associated with these types of storms. This study utilizes National Centers of Environmental Prediction (NCEP) reanalysis data, readily available from the National Climatic Data Center, to explore changes in the partition of energy in the atmosphere since 1948. With increasing air temperature one would expect to observe an increase in available potential energy (APE) within the Earth-Atmosphere system. One may also note an increase in kinetic energy which may indicate fluctuations in wind and storm intensities around the globe. The hypothesis of this study is that the energy budget of the NCEP reanalysis data is suggestive of increased intensities of mid-latitude storm systems.

Students: Katherine Mendoza, Amanda Vasquez, Amber Chapman, Chelsie Steinbacher, Chris Rodriguez, Dania Valdes, Guillermo Reyes, Kacey Scheiner, Katelyn Peters, Sara Gaudio, Tara Smith

Faculty Sponsors: Karen Joest (Human Ecology), Caridad Souza-Watkins (Women's & Gender Studies/Africana & Latino Studies), Dale Capristo, Rebecca Harrington (Student Development), Robin Nussbaum (Hunt College Union), Dave Geasey (Creative Media Services)

Decreasing Barriers, Planting SEEDS: Success in Education through understanding Equity and Diversity in Students

Approximately ten percent of SUNY Oneonta undergraduates identify themselves as Black, Hispanic, Asian or American Indian; 6.6 percent are below the national poverty threshold and 14.8 percent have family annual incomes under \$30k. However, over 50 percent of the undergraduate population has an estimated annual family income of over \$60k. This multi-media project explores issues and barriers faced by low-income and minority women attending a rural four-year college. The focal point is a thirty-minute student-produced documentary featuring interviews with students from this population, as well as images of life and obstacles on campus and in the greater community. The video will be supplemented by a toolkit that will provide additional information. The proposed activities will impact target audiences by identifying challenges, raising awareness, providing tools and strategies, and promoting the message that all students are valued members of the campus and community. The toolkit will encourage faculty to utilize specific approaches in their teaching and contact with students. Community members will also learn to identify barriers and recognize techniques for helping students overcome these challenges, creating a supportive learning and living environment for low-income and minority women.

Student: Josh Merrill

Faculty Sponsor: Joseph Chiang (Chemistry & Biochemistry)

Study of Sustainability and Sustainable Energy

Sustainability is the process of maintaining a condition or state indefinitely. Sustainable energy is becoming a topic of greater importance and interest as natural resources and precious fossil fuel levels are rapidly being diminished, while population density and the demand for energy are ever-increasing. This study will provide a full spectrum of new and/or improved methods or ideas on creating sustainable and green energy sources, using data and information gathered from various journal articles and papers.

Students: Matt Miner, Kaitlyn Charles

Faculty Sponsor: Jacqueline Bennett (Chemistry & Biochemistry)

Green Photochemical Dimerization of Dibenzylideneacetone

Chemical reactions that are induced by light have many applications and are especially useful in the formation of four-membered ring structures, which are compounds that are difficult to prepare by other methods. While these reactions usually lack harmful reagents, they do, however, involve harmful solvents. As well as being harmful to the environment, these solvents are usually highly flammable and harmful (usually carcinogenic) to the user. The elimination of these harmful solvents would provide a green reaction, thereby eliminating the use of harmful solvents in this reaction. This reaction could then be applied to the synthesis of compounds by other research groups in the formation of complex molecules requiring this type of cycloaddition. The reaction we are modeling our research on is the [2+2] cycloaddition of dibenzylideneacetone. The reaction was carried out using toluene, a highly flammable, environmentally harmful solvent. We have been working towards improving this method. Our current research has found solvents that are less harmful to the environment and user, such as acetone and ethyl benzoate; however, we are working on developing analytic techniques to determine if our product was our goal product. At our current position, we are learning that this may be a developing project.

Students: Amanda Minnock, Olivia Kenyon

Faculty Sponsor: Tracy Betsinger (Anthropology)

Mohawk Valley Skeletal Remains: Analysis for NAGPRA

This project involves analysis of commingled skeletal remains, including inventory, age, sex, and stature determination of the individuals and, additionally, looking for any possible trauma or disease that can be found on the skeleton. We hope to aid in the repatriation of these remains, relevant to the Native American Graves Protection and Repatriation Act (NAGPRA), Pub.L. 101-601, 104 Stat. 3048, a United States federal law passed on November 16, 1990, and requiring federal agencies and institutions that receive federal funding to return Native American cultural items and human remains to their respective peoples.

Student: Laura Morton

Faculty Sponsor: Jon Arakaki (Communication Arts)

Portrayal of Female Characters on *Hannah Montana*

Young girls are facing more pressure than ever to conform to the idea that they need to be thin, popular and perfect. According to the social learning theory, we learn through observing others and will try to imitate these behaviors. If a positive behavior is observed, it is more likely that a person will try to mimic and adopt this behavior. It also works the same way with a negative behavior. If one follows the logic of social learning theory, it will eventually be adopted as a social reality that the ideal girl is what is observed in the media. This study examines the portrayal of young girls on the Disney television show *Hannah Montana*, and the potential negative effects the show has on the development of its adolescent female viewers. A textual analysis of 12 half-hour episodes of the show was conducted. Findings conclude that *Hannah Montana* portrays girls in stereotypical roles (tomboy, smart girl, tough girl), teaches that negative behavior is acceptable and forgivable, and suggest that girls should learn how to be someone other than themselves because being themselves is simply not enough in our society.

Student: Idy Neuman

Faculty Sponsor: Mary Ann Dowdell (Human Ecology)

Village of Haverstraw Corner Store/Bodega Healthier Food Choices Initiative

Research studies have shown that Hispanic Americans have disproportionately higher rates of chronic obesity than their non-Hispanic counterparts. The goal of this project was to help Hispanic-Americans residing in Haverstraw, NY to reduce their incidence of chronic obesity and cardiovascular-related health issues by improving their nutrition intake. The Village of Haverstraw, a predominantly Hispanic community in Rockland County, NY, is comprised of a low-income population, with the majority of residents conducting their food shopping at corner stores/bodegas (which generally do not stock healthier food choices) throughout the village that are within walking distance of their homes; many residents do not drive and are unable to afford public transportation to the larger supermarkets. This project, an offshoot of the Steps to a Healthier Rockland Corner Stores Program (funded by a grant from the Centers for Disease Control), improved the availability and accessibility of healthier food choices in the corner stores and bodegas. Consumer influence, exposure and awareness of healthier foods, namely foods high in fiber and fruits and vegetables, were assessed both at the point of purchase (corner store) and at various community venues.

Student: Abdul Rahim Nurani

Faculty Sponsors: David Ring, Dona Siregar (Economics, Finance & Accounting)

Stock Market Returns from Monetary Policy Actions

This study investigates the effect of monetary policy actions taken by the Federal Open Market Committee (the Fed) on stock market returns. The Fed's actions on monetary policy are carried out to influence the availability of money and the cost of money and credit, as ways to promote national macroeconomics goals. Financial markets are often sensitive to any information on

actions or statements released by the Fed. Kuttner (2001) found that changes in target interest rate that are anticipated by investors have a small response to the prevailing interest rates, while changes that are unanticipated contribute to a larger and significant effect to the current interest rates. Bernanke and Kuttner (2005) reported that a large part of the response of stock prices is from the effects of unanticipated monetary policy actions that feed into the expected returns. Poole et al. (2002) found that transparency of the Fed's actions relate to the ability of the market to predict the outcome. In sum, the three papers indicate that transparency, the surprise element resulting from the Fed's decisions, and anticipated and unanticipated changes perceived by the market have a relation to the level of interest rate and, eventually, to stock market returns. This study investigates the effect of a change in the Fed funds rate on the stock market returns. This includes the meetings at which the Fed eventually increases and decreases the fed funds rate, taking into account whether the meetings are scheduled or unscheduled.

Student: Ryan Palumbo

Faculty Sponsor: Fred Zalatan (Biology)

Characterization of a Putative Fatty Acid Transport Protein Gene in *Caulobacter crescentus*

Caulobacter crescentus is an aquatic bacterium of interest to microbiologists because of its unique cell cycle, which is characterized by differential cell division that results in two forms of daughter progeny: a mobile, reproductively inactive swarmer cell, and a sedentary, reproductively active stalked cell. *C. crescentus* is also of interest because it thrives in nutrient-poor environments. This raises this question of *how* exactly this bacterium is able to survive under such harsh conditions. Previously, work in our lab has suggested that *C. crescentus* probably does not rely solely on the simple diffusion of fatty acids—molecules that are important for a variety of cell structures, function, and energy production—and probably employs a protein-mediated fatty acid uptake mechanism. Here, we show a mechanism for the construction of a *C. crescentus* strain lacking a functional fatty acid transport protein (*fatp*). Also, we show the activity of *fatp* in a knock-out *Escherichia coli* strain lacking a similar fatty acid transport protein, furthering the understanding of the activity of the gene.

Students: Kara Parnett, Jillian Richards, Sarah Karas

Faculty Sponsors: Dawn Hamlin, Nathan Gonyea (Educational Psychology & Counseling)

Working on Closing the Gap: Research on Pre-service Attitudes about Research

Recent legislation has increased the emphasis on accountability in the public school systems. Included in this recent widespread focus on progress monitoring and data is the requirement that teachers implement evidence-based techniques and interventions. In order to maximize student attainment, teachers must choose strategies that have a solid research base. Unfortunately, for far too long there has been a wide gap between what occurs in the classroom and what research tells us is most effective (Zigmond, 2007). To close this research-to-practice (RTP) gap, pre-service teachers must learn to develop, implement, and assess efforts, methods and techniques that lead to more research-oriented public-school teachers. An initial, open-ended eight-item survey was conducted with pre-service teachers at SUNY Oneonta on their perceptions of the value of research. Using this data as a platform, we used this information to develop a rating scale that was used with a larger sample. This modified survey was conducted with over 140 SUNY Oneonta Education majors, in order to evaluate their perceptions on educational research in order to hopefully decrease the current RTP gap. This presentation will include data from the descriptive analysis of this survey.

Student: Waylon Partridge

Faculty Sponsor: Cynthia Klink (Anthropology)

The Archaeological Application of the EMI Profiler at Pine Lake, NY

This project will assess the ability of the Electromagnetic Induction Profiler (EMIP) to collect information useful for archaeological investigations, specifically for ongoing excavations at the

Pine Lake site, located in West Davenport, NY. The objective of the proposed research is to test the ability of the EMIP to detect the most common types of archaeological remains found at the Pine Lake site. These include several kinds of stone artifacts, as well as features created by burning.

Students: Natalie Peckham, Joe Sullivan, Missy Reinheimer, Katlyn Hutchings

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Replacement of Fat in Brownies with Prune Puree

This research shows that prune puree can be an acceptable fat replacer in many darker-colored baked products, such as brownies. Four experiments were conducted: the control was a regular batch of full fat brownies, and three others contained the same amount of prune puree (1/4 cup) but varied in the amounts of flour (due to the fact that prunes have a high moisture content and we wanted to avoid sacrificing appearance). We performed these experiments in the Food 230 lab, where our peers evaluated each of our four batches of brownies (without knowing which were full fat and which were not). Each student completed a survey to rate the brownies on a scale from 1 (strongly unacceptable) through 5 (strongly acceptable).

Student: Amy Pondolino

Faculty Sponsor: Dennis Higgins (Mathematics, Computer Science & Statistics)

Dynamic Lesson Plan Repository

The purpose of this project is to create a program that will allow users to upload and share lesson plans online. Lesson plans may consist of a combination of pictures and text files, focused around a visit to Oneonta World of Learning (OWL), a children's museum coming soon to Oneonta, NY. If deployed, visitors will be able to plan their visit to the museum with scavenger hunts, crafts and activities for use before, during and after their visit. This will help engage classrooms, homeschoolers and families in playful learning activities.

Student: Levi Reed

Faculty Sponsor: Sheila Serbay (Psychology)

A Look at Psychoactive Drugs and Depression

After reading multiple books on the subjects of psychoactive drugs and depression, I interviewed members of the therapy profession. A survey of SUNY Oneonta Psychology 100 students was then conducted, asking their opinion on the subject. This poster presentation will highlight results of the study.

Student: Molly Reed

Faculty Sponsor: Devin Castendyk (Earth Sciences)

Quality Monitoring in the Headwaters of the Susquehanna River, Otsego County, New York

From May 2008 to October 2008, water samples were collected from 20 different sites along the Susquehanna River and its tributaries, once a week. Using a Eureka multi-probe at each site, temperature, pH, electrical conductivity, and dissolved oxygen were tested. The samples were then tested at the SUNY Oneonta Biological Field Station in Cooperstown, NY, for total phosphorus, total nitrogen, nitrates, and ammonia. The suspended sediment loads for each sample were also analyzed.

Student: Maribeth Rubenstein

Faculty Sponsor: Tracy Allen (Geography)

Impact of the 1993-95 Surge on the Morphology of Ice-Contact, Tsiu Lake, Bering Glacier, Alaska

Unlike most Alaska glaciers, the Bering piedmont lobe terminates on a foreland of islands separating a series of ice-contact lakes, including Tsiu Lake. The Bering is known for cyclic surges that have had significant impact on foreland terrain. The purpose of this investigation is to

assess the erosional and depositional impact of the 1993-95 surge and retreat on the pre-surge Tsiu Lake basin depth and morphology. Consistent with field studies of the past two decades, a 2008 bathymetric survey of Tsiu Lake basin was conducted using Lowrance sonar that recorded Global Positioning System (GPS) locations for hundreds of depth measurements on this 3 km² lake. Data were initially processed in the field using a Geographic Information System (GIS) format, yielding real-time maps depicting lake basin morphology. This was followed by use of the Surfer and ARC applications in the laboratory. These data, combined with bathymetric data from previous years, yields an average rate of sedimentation of 3 m/yr (2005-2008). Combined with rates determined for the interval between 1991 and 2008 (including the surge, subsequent retreat, and post-surge delta growth into the lake) we have determined that ice entering the lake basin during the surge resulted in lake bottom erosion of 3m. Unique to this investigation is a knowledge of foreland terrain prior to, during, and after the 1993-95 surge, coupled with changes in lake level due to breakout events during a decade of retreat from the surge limit. This investigation provides insight to processes and rates of change that would otherwise go undetected.

Student: Christopher Schwarz

Faculty Sponsor: Vicky Lentz (Biology)

Purification and Structural Analysis of IgM Antibody in Large Mouth Bass (*Micropterus salmoides*)

IgM, an antibody that is thought to be the original antibody from which all others are derived, is found to be present in all members of the kingdom Animalia, dating back 460 million years. This includes all cartilaginous fish, bony fish, amphibians, birds, and placental mammals. Many studies have been done on placental mammals (primarily humans) to uncover the exact structure of immunoglobulin IgM. These studies have shown IgM to be comprised of two heavy chains and two light chains with a total molecular weight of 150,000 daltons, which are held together by disulfide bonds. Past experiments on IgM from *Micropterus salmoides* by Dr. Vicky Lentz and students have yielded results that show only heavy chain and polymers of heavy chain in the final product of the antibody purification process. This is incongruent to tests done on human and other animal IgM, where both heavy and light chains were purified using the same method. In order to shed light on this phenomenon, the serum of Large Mouth Bass was taken, and immunoglobulin IgM was purified using ammonium sulfate precipitation and size exclusion chromatography. Prior to running the sample through the column it was calibrated using three mixtures of proteins with varying molecular weights. A standard curve was then plotted using the obtained Kav values from the calibration kit. The results from the IgM run were plotted alongside the standard curve and compared. The results were then compared to the results from the past experiments, and confirmed that we were seeing polymers of heavy chain and still no light chain. A second sample of IgM was purified and yielded the same results and, again, our hypothesis was supported.

Student: Rebecca Shea

Faculty Sponsors: Paul French, Allen Anderson (Physics & Astronomy)

Atwood's Machine: Methods to Success

Atwood's Machine: Methods to Success tests the effectiveness of the traditional Atwood's Machine laboratory used to determine the acceleration due to gravity. In this research the experiment is performed using two pulleys with varying inertias. Data for each pulley are collected using stopwatches and video analysis, and each set of data is analyzed using three different methods. The first method of analysis neglects friction and the rotational inertia of the pulley. The second method includes the force of friction and neglects the rotational inertia of the pulley system. The third method includes friction and the rotational inertia of the pulley system. The results will be used to determine which combination of pulley, data collection, and analysis would be most effective in a high school setting. The effectiveness is based on which combination leads to the most accurate value of acceleration due to gravity, is at an appropriate skill level for high school students, provides the most education objectives, and requires equipment readily available to the common high school classroom.

Students: Luke Soposki, Gwendolyn Nieves

Faculty Sponsor: Jacqueline Bennett (Chemistry & Biochemistry)

Organic Chemistry mLearning

mLearning is based on students utilizing technology to view instructional presentations demonstrating the use of equipment used in the organic chemistry lab, allowing students to gain familiarity with equipment and techniques before arriving in the laboratory. The videos presented show detailed use of infrared spectroscopy, nuclear magnetic resonance, and glassware setup for steam distillation, as well as basic laboratory safety protocols. The videos are presented to be entertaining, in order to engage the audience while still being informative.

Students: Elijah Spina, Caitlin Heuberger, Miyeon Presky, Jessica Rodriguez

Faculty Sponsor: Jacqueline Bennett (Chemistry & Biochemistry)

Green Synthesis of Beta-lactam Antibiotic Analogs

Beta-lactams are a class of widely used and highly effective antibiotics such as penicillin. Some bacteria have developed resistance to this class of antibiotics by means of attacking its main structural characteristic, a four member ring, which makes a Beta-lactam what it is. This synthesis is an extension of a previous project that resulted in a library of imines which we are now using to make azetidines, structural analogs of Beta-lactams. The previous project was also conducted using green synthetic methods, such as reducing energy input and using less toxic solvents than observed in literature. Azetidines are classified as four member rings consisting of three carbons and a nitrogen, similar in composition to the ring in Beta-lactams, but lacking the amide bond which is susceptible to bacterial resistance enzymes. The azetidines produced will be tested in the future to determine their possible antibiotic properties and non-susceptibility to bacterial resistance enzymes.

Student: Rachel Stevenson

Faculty Sponsor: Jeffrey Heilveil (Biology)

Isolation and Identification of Male-specific DNA Markers from *Litobrancha recurvata* (Ephemeroptera: Ephemeridae)

This project aims to identify sex-specific molecular markers in *L. recurvata*, a burrowing mayfly found in Otsego County, NY. Mayflies are commonly used as an indicator species of high water quality, and while studies have been conducted on the oviposition by the female and the ultimate fate of the female, little to no research has been done on male mayflies. The development of male-specific genetic markers will allow, in future studies, the determination of breeding and migration patterns in this species and potentially other members of the same Family. Sex-specific markers have not been previously developed for any member of the Ephemeroptera, making this research an important contribution to the field.

Student: Sarah Summers

Faculty Sponsor: Dennis Banks (Secondary Education)

LGBTTPPQQI

This presentation begins by defining the acronym LGBTTPPQQI (lesbian, gay, bisexual, transgender, transsexual, queer, questioning, and intersex), and includes a clip from *It's Elementary*, a film/documentary that shows how it is possible to engage children in a productive dialogue about LGBT issues. The Jaime Nabozny case is explored, which conveys the issues that education majors will face as teachers, and the award-winning short film *Trevor* is highlighted. The Identity Development theory is explained, outlining the stages of "coming out" for gay, lesbian, and bisexual students, and a chart of the outside of the binary pronouns is included. The project examines ways that people can start acting toward societal improvement on an individual level and how to be an ally to the LGBT community.

Student: Rashpal Suri

Faculty Sponsor: Dona Siregar (Economics, Finance & Accounting)

Analyzing the Returns of Common Stocks by Price-to-earnings with the Fama-French Three Factor Model: Does Efficient Market Hypothesis Remains Exist?

In an efficient capital market, stock prices fully reflect the information available. If you are an investor, this means that regardless of the stock you pick, you will not be able to beat the market consistently from time to time. The implication of this hypothesis is that if the market is not efficient, investors' decisions on stock picking are biased, allowing the investors to consistently earn abnormal returns on the stocks. One such test on the Efficient Market Hypothesis is by examining the portfolios of stocks that are arranged according to their Price to Earnings (P/E) ratio. Results of previous studies attempting to test in this framework are mixed. Josef et al. (1994) found that stocks with low P/E outperform high-P/E stocks with the same level of risk. A commonly cited paper by Basu (1977) found a similar pattern for stocks traded in earlier years. This paper examines whether low-P/E stocks continue to outperform high-P/E stocks using the Fama-French Three Factor model, using recent stock data from the period of 1990-2008. The Fama-French Three Factor model is used, as opposed to the Capital Asset Pricing Model, because it seems to have better descriptive capability of incorporating risks of stocks to explain their returns.

Student: Ariane Torres

Faculty Sponsor: Joseph Chiang (Chemistry & Biochemistry)

Study of Transparent Conducting Oxide (TCOs)

The most important study of solar cells is the synthesis of transparent conducting oxides (TCOs). The current TCOs are based on indium tin oxides (ITO). Indium metal is very expensive. Solar cell researchers propose to replace ITO with other oxides; ZnO is less expensive, but its conducting properties cannot reach higher efficiency. Thus, we propose to search for an ITO replacement. We are presently synthesizing TiO₂ via several methods. The first method is the synthesis of titanium oxide (TiO₂) using titanium (VI) isopropoxide in a solvent of toluene at autoclave temperatures of up to 200⁰C for 12 to 24 hours. This method can produce anatase structure of TiO₂. We have obtained several final products thus far. Our second method is a direct oxidation of titanium metal by a 30 wt% at 350K H₂O₂ 75-80⁰C for up to 70 hours. All the final products will be analyzed by transmission electron microscopy (TEM), scanning probe microscopy (SPM) and X-ray diffraction (XRD) methods to identify their structure. The electric conductivity will also be measured. The last method is to prepare TiO₂ from TiCl₄ in a hydrothermal process. TiCl₄ is reacted with ice water to form TiOCl₂. Once TiOCl₂ is formed, it will be carried out in an autoclave at 140-220⁰ for two hours to produce the final TiO₂ product.

Student: Nwakaego Ukonu

Faculty Sponsor: Charlene Christie (Psychology)

Minority Academic Achievement and Predominantly White Institutions

The purpose of this study was to identify whether "sense of belonging" and intellectual stereotypes about minority individuals contribute to a lack of academic achievement among minority students. Sense of belongingness is defined as the extent to which people feel connected to their present environment. The study examined whether minorities at predominantly white institutions have lower levels of academic achievements based on a lack of sense of belongingness and a belief in the idea that the majority of individuals around them endorse negative stereotypes concerning their ability to achieve. The study measured stereotypes endorsed by individuals themselves about other groups, how confident they were with their intellectual and academic abilities, and how confident they believe individuals outside their group to be in their ability to achieve in an academic setting.

Students: Nwakaego Ukonu, Theanna Quarltre

Faculty Sponsor: Charlene Christie (Psychology)

Stigma, Comparison, and Self-Esteem

It is often times wondered whether or not group identification has an effect on self-esteem. Furthermore, it can be questioned whether one is more inclined to identify with people inside or outside his or her in-group. Participants will undergo a series of tests that will include a pre-test, task and post-test. The pre-test will determine how strongly they affiliate with a group, their current self esteem, and their collective self esteem as it pertains to the group. This will be followed up by a manipulated task, via stereotype threat. Participants' identification with the group and self esteem will then be measured again, and participants will then be allowed to compare themselves to others based on the manipulated tasks. We hypothesize that individuals with loose affiliations to their group are less likely to have their self esteem compromised after the task, and will also be more likely to compare themselves with out-group members.

Student: Maria Vann

Faculty Sponsor: Jeffrey A. Fortin (History)

We are ourselves, and those that you call husbands, are our servants: Dutch Women in Seventeenth-Century New Netherland

This thesis explores the lives of women in seventeenth-century New Netherland. Women of New Netherland were unique in the Atlantic world because their social status provided semi-equitable civic involvement. Dutch cultural foundations, a diverse population, and the borderland environment of New Netherland contributed to these women's fluid social status. Topics such as connections to the Atlantic world, the relatively accessible legal system, and social attitudes toward slaves and children are examined to illuminate the nature of Dutch colonial society. Primary and secondary sources are utilized to explore the words of women and what they reveal about women's social posture. The continued study of Dutch women is necessary to fully understand the implications and complexities of Dutch colonization.

Student: Jessica Vecchione

Faculty Sponsor: Elizabeth Small (Foreign Languages & Literatures)

Bienvenidos A Fleischmanns - An Immigrant Community in Rural America

This project resulted in a sixty minute documentary about the Hispanic community in Fleischmanns, a small rural village in Delaware County, NY. The documentary chronicles how the community got started in 1986 and relates the experiences of many of its Hispanic immigrants.

Student: Brenden Wagner

Faculty Sponsors: Thomas Horvath (Biology), Les Hasbargen (Earth Sciences)

Butternut Watershed Nutrient Study

Our study will analyze nutrient inputs and other water characteristics from tributary streams throughout the Butternut Creek watershed, relating land use to nutrients. Primarily derived from agricultural soil enrichment, excessive nutrient inputs cause toxic blooms of algae, a serious issue in the Chesapeake Bay, where the Butternut's waters meet the sea. This project intends to show a direct correlation between land use and nutrient content, as well as provide background information on the watershed before alterations occur from gas drilling and global climate change.

Student: Stacey Washington

Faculty Sponsor: Nigel Mann (Biology)

A Field Study of the Unique Singing Behavior of the Stripe-breasted Wren: Analysis of Natural Song Patterns

This display presents results and information gathered during research in Costa Rica at El Zota Field Station in the Summer of 2008, funded through a SUNY Oneonta Student Research and Creative Activity Grant award. The project used observational and sound recording devices to compare the two different types of songs used by wrens. Playback experiments were also conducted to compare the response of wrens to the hoot songs and complex songs that they use. Our experiments have shown a difference in the type of song used, and our results will also show that wrens use each of their songs for a different purpose.

Student: Jennifer Westcott

Faculty Sponsor: Mary Ann Dowdell (Human Ecology)

Nutrition and Exercise Training Program: Increases Awareness and Improves Risk Factors of Chronic Disease

Based on a community needs assessment, we have redeveloped a program to provide an affordable and accessible community-based nutrition and exercise training program for the adult population of Oneonta, NY, and surrounding communities. This program offers individual sessions that provide nutrition and exercise education and support to help promote wellness and prevent chronic diseases, as well as aid in the management of chronic diseases. Specifically, the program aims to increase awareness of risk factors and ways to prevent chronic diseases with nutrition and exercise, as well as improve both general and disease-specific risk factors among participants. Our program also focuses on increasing age-appropriate physical activity among participants to promote a healthy weight and aid in disease management. The program is evaluated based on outcome measures defined by enrollment numbers and participant awareness and improvement of their personal risk factors for chronic disease. This research has been a collaborative effort of A.O. Fox Memorial Hospital, the SUNY Oneonta Graduate Dietetics Department, and the New York State Nutrition Council, which awarded the team a grant for program development and implementation this past fall.

Student: Scott Wetmore

Faculty Sponsor: Tatiana Vislova (Earth Sciences)

Meteorite Impact Ejecta Study

This project tested the hypothesis that an exotic rock layer found at Gunflint Trail, Minnesota, is comprised of distant ejecta material that resulted from a large meteorite impact which occurred 1.85 billion years ago at a distance of over 750 kilometers, in present day Sudbury, Ontario, Canada. This hypothesis was evaluated through petrographic and geochemical composition comparison of rock samples obtained by SUNY Oneonta professors from both the Sudbury impact site and Gunflint Trail. The X-ray fluorescence elemental analysis conducted at SUNY Oneonta became the first geochemical data acquired for the major, minor, and trace elements that comprise this distal ejecta material. This effort may now serve as important baseline data for others searching for answers concerning its origin. Data analysis indicates that the exotic rock layer at Gunflint Trail does contain ejecta material that is geochemically unique from the surrounding local rock formation. Additionally, we identified differences in the chemical compositions between the rock samples collected at the Sudbury site and Gunflint Trail. Although the ejecta material found in Minnesota is foreign to that area, this data reveals that further investigation is required to determine if it actually originated from the Sudbury meteorite impact.

Student: Scott Wetmore

Faculty Sponsor: Paul Bischoff (Secondary Science Education)

Seasonal Abundances of Naked Amoebae on Zebra Mussels (*Dreissena polymorpha*) with Comparative Data from Rock Scrapings

In North America, zebra mussels (*Dreissena polymorpha*) are an invasive species notoriously known for altering the physical, chemical and biological attributes of aquatic ecological communities. However, little is known about how zebra mussels impact microbial communities, including naked amoebae. In this study the abundance of naked amoebae determined from the shells of zebra mussels was compared to abundances from rock scrapings at approximately monthly intervals for one year. No significant difference ($F = 1.44$; $p \leq .270$) was detected in total naked amoebae abundances between the zebra mussel shells and rock surfaces, and no difference in abundances ($F = 1.11$; $p \leq .406$) were found when naked amoebae were compared by morphotype. The combined naked amoebae abundance data from zebra mussels and rock scrapings showed a decline in mean numbers from winter to early spring, when naked amoebae were undetectable in some samples. This was followed by high abundance peaks in May (9604/g) and September (10,362/g). The percent of observed naked amoebae likely encysted in the natural environment increased from a low of one percent in the summer to as high as 80 percent in one early winter sample.

Students: Crystal Wiles, Daniel Yanik, Michael Bergman, Michele Daly

Faculty Sponsor: Florian Reyda (Biology)

The Trematode Parasites of Fishes of Otsego Lake

A survey of the helminth parasites of the fishes of Otsego Lake and a nearby pond at the Thayer Farm was undertaken from September to December of 2008 at the SUNY Oneonta Biological Field Station in Cooperstown, NY. Twelve species of fish were collected and examined to see what parasites they hosted. Knowledge of fish parasites can provide information on lake features such as food web interactions and, potentially, water quality. A diverse number of larvae and adult trematodes were seen in several of the species of fish examined. Contrary to popular belief, the diversity of trematodes our research has found actually promotes the fact that the lake has a healthy ecosystem. It is most likely that there is still a greater trematode diversity in Otsego Lake which further research is likely to uncover.

Student: Graham Willsey

Faculty Sponsor: Vicky Lentz (Biology)

Production of a Hybridoma Cell Line Producing Monoclonal Antibodies Targeting Bovine IgM

The ability to create cell lines producing large quantities of a specific antibody holds many practical applications in both research and medicine. These cell lines are engineered using hybridoma technology. In the process, B cells are isolated from the spleens of mice immunized to produce the antibody of interest, and fused with a B cell myeloma. Since native spleen B cells have a limited life span, fusion with the myeloma B cells must occur in order to develop an immortal cell line. The cells are screened using a selective growth media, where non-fused myeloma cells are unable to grow, while non-fused spleen cells naturally die off. The remaining fused cells are then analyzed through enzyme-linked immunosorbent assays (ELISA) for detection of the antibody of interest. We will be creating hybridoma cell lines that produce antibodies targeting IgM in Largemouth Bass. We have been conducting a trial experiment over the last ten weeks using Bovine IgM as the target antigen. We have immunized mice with Bovine IgM, established a SP2/0 myeloma line, and have begun to develop the ELISA. We are currently waiting for the mice to develop a secondary immune response in order to move forward with our cell fusion, and subsequent screening.

Student: Lorraine Yanosik

Faculty Sponsor: Nicola McEnroe (Biology/Earth Sciences)

Characterizing Wetland Properties in Relation to the Abundance of an Invasive Species (*Lythrum salicaria*)

The goal of this research was to quantify environmental characteristics (soil properties) in relation to the invasive species Purple Loosestrife (*Lythrum salicaria*) in Goodyear Swamp Sanctuary. Data was collected from the site and soil samples were analyzed in the laboratory. Graphs were compiled with the gathered data and presented at the American Geological Union Conference in San Francisco, CA in December 2008.

Student: Elizabeth Zimmer

Faculty Sponsor: Donna Vogler (Biology)

Leatherback Sea Turtles and the Effect of Vegetation on Hatchling Success

Leatherback sea turtles (*Dermochelys coriacea*) are the largest species of sea turtle. They have the highest hatchling mortality rate, which is under ongoing investigation. This study investigated the effects of various types of vegetation on hatchling success. Plants such as *Ipomea*, *Opmea*, *Canavalia*, and *Cassythe filiformis* have been shown to have a negative effect on hatchling success due to entanglement, disorientation, and heat retention. This past summer I had the opportunity to work through the West Indies Marine Animal Research and Conservation Service (WIMARCS), Sandy Point National Wildlife Refuge, on the island of St. Croix in the U.S. Virgin Islands. Sandy Point is the largest protected nesting beach in the northern hemisphere. During this project I investigated the effects of vegetation on emerging leatherback nests. Over a three-month period I recorded data from different zones of the nesting beach, in order to show differences in vegetation ground cover and effects on hatchling mortality rates. Studies were based on excavations conducted three to four days after emergence, and data was compared between the various zones on the nesting beach.