2011 SRS

17th ANNUAL

SUNY NEW PALTZ STUDENT RESEARCH SYMPOSIUM

ABSTRACT BOOK

17th ANNUAL
SUNY NEW PALTZ
STUDENT RESEARCH SYMPOSIUM

Friday, May 6, 2011
Quiet Study Hall, Library
4:00- 6:30 p.m.

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Sponsored by:
The SUNY New Paltz Research, Scholarship, and Creative Activities Program

Editor and Cover Design:
Maureen Morrow, RSCA Director

The 2011 Student Research Symposium

Once again, as the academic year comes to a close, we have this opportunity for scholarly exchange amongst our faculty and students. The 2011 Student Research Symposium will include 72 poster presentations of work performed by 108 students representing 23 departments. This is an occasion for us to share our accomplishments in a spirit of camaraderie.

The Student Research Symposium is sponsored by the Research, Scholarship and Creative Activities (RSCA) Program. The mission of the RSCA program is to encourage and support student- faculty collaboration in the active participation of scholarly and artistic activities that generate new knowledge or works.

Such activities enable students to gain knowledge, skills, and confidence to contribute as productive members of their professions and contribute to a learning environment which is challenging, student-centered, and personalized.

Acknowledgements

The following people have provided generous support of this event:
Don Hodder and Paul Chauvet (Geological Sciences and Computer Services) for assistance with poster printing;
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President Christian and Provost Garrick-Duhaney for support of the RSCA program.

The RSCA Advisory Board:

Liz Hester (Communication Disorders), Morgan Gwenwald (Library)
Frantz Folmer-Andersen (Chemistry), Robin Arnold (Art), Jed Mayer (English)
Kate McCoy (Educational Studies), Joel Neuman (Business)

Welcome to the Student Research Symposium

Student research participation is one of several "high-impact" educational practices known to produce especially deep and meaningful learning. Such projects require that students devote time and effort to purposeful tasks; make frequent decisions about their work; interact with faculty (and sometimes peers) about their work; and receive frequent feedback about performance. Such experiences deepen understanding of the substance and methodology of a discipline, and provide opportunities to refine and demonstrate problem-solving, analytical, and communication skills. Overcoming the challenges inherent in many successful research projects yields a healthy combination of meaningful confidence and appropriate humility.

Research participation is certainly valuable (indeed, essential) for students considering graduate education and research careers. But these experiences are directly relevant in the education of all students, irrespective of future goals. Recent surveys sought employer opinions about the kinds of experiences they find valuable in producing the knowledge and capability they seek in college-educated new employees. Over 80% value completion of a research or similar project that demonstrates knowledge in the major along with analytical, problem-solving, and communication capability. Over 80% value experiences that help students develop skills to research questions in their field and to develop evidence-based analyses. The capabilities and perspectives gained through research are broadly transferrable, and are in demand both within and outside of academia.

Successful undergraduate research programs like ours depend on the dedication, disciplinary knowledge, and research and scholarly expertise of faculty. I recognize the commitment of time and effort by faculty who have mentored and advised student research and scholarly projects, and I am grateful for your important contributions. I know that in many ways this is a "labor of love," and how rewarding and long-lasting are the intellectual relationships you build with research advisees. I also acknowledge the many important contributions of the advisory committee and campus-wide coordinator (Professor Maureen Morrow) in managing our funding-allocation processes, advising students, organizing events such as this symposium, and many other responsibilities.

Finally, I congratulate students and faculty both for your hard work and your success in projects this past year, and wish you continuing success and fulfillment in the future.

Donald Christian
Interim President

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Laurel M. Garrick Duhaney
Interim Provost

On behalf of the Research, Scholarship, and Creative Activities Advisory Board, I would like to welcome you to the 2010 Student Research Symposium. This event is the 16th consecutive celebration of student-faculty scholarship at SUNY New Paltz.

As you are aware, the process of producing scholarship through research and/or creative activities is both difficult and exciting. I am certain the faculty- student interactions you experienced in this process were unique and stimulating. Please know that these experiences are a rewarding part of the job of a college professor; so do stay in touch after you have graduated. It brings us all great joy and inspiration to hear of your post-New Paltz adventures and successes.

I hope this event brings you fulfillment in presenting the results of your work and inspiration from your fellow students' accomplishments.

Maureen Morrow
RSCA Director and Associate Professor of Biology

Research, Scholarship and Creative Activities Program

Faculty student collaborators may propose projects for support through the Summer Undergraduate Research Experience (SURE) and Academic Year Funds programs (AYURE). Both of these programs are competitive and are selected for support by a faculty committee. Students whose work is accepted for presentation at a professional conference are eligible for the RSCA travel award.

Congratulations to all of this year's award recipients (please see pages 48 - 51).

SURE
The focus of the SURE program is to encourage intensive student participation in an aspect of faculty research. Each student participant is supported with a stipend for the 8 week summer project and is expected to devote at least 35 hours per week to the project. Faculty mentors direct and provide guidance to participating students as they work on a particular aspect of the faculty's research program. As a goal of this program is to encourage ongoing faculty student collaboration, and thus students are encouraged to continue working on the project during subsequent semesters.

ACADEMIC YEAR FUNDS
This program (AYRUE) supports student faculty collaborations on projects that span the disciplines. Projects that generate new knowledge or works are eligible for support. Funds for supplies and support of the research, scholarship or creative activities are provided through this program.

STUDENT CONFERNCE TRAVEL AWARD
The RSCA program supports students to present the results of the collaborative work at professional conferences. Mentors are also supported for travel with the student.

COUNCIL ON UNDERGRADUATE RESEARCH INSTITUTIONAL MEMBERSHIP
CUR provides support for undergraduate research in a variety of way. Consider participating in the Undergraduate Registry. The purpose of this Registry is to facilitate matching between undergraduates and graduate schools seeking high quality students who are well prepared for research.
http://www.cur.org/ugreg/register.asp

SUNY New Paltz is an institutional member of the Council on Undergraduate Research
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For more information, please visit our web page: www.newpaltz.edu/studentresearch.
You may also contact: Maureen Morrow, Director, Undergraduate RSCA
morrowm@newpaltz.edu (845-257-3776).

Poster Sessions at-a-glance

Titles for each session are listed alphabetically by first author's last name.
Abstracts can be found in alphabetical order by students department.

Poster Session I 4:15-5:00p

Isotpic Gio-geochemistry of the Mid-Hudson Valley
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Redox and Structural Stability of Oxyvita Hemoglobin
Raneen Rahhal, Joe Branco (Chemistry, undergraduate)
Deserving or Delusional: Job Over-Qualification
Elena Brondolo, Carrie Sauer (Psychology, undergraduate)
The Sedimentary Record of Louisa Pond, Esopus, NY
Chris Callinan (Environmental Geochemical Science, undergraduate)
The Study of Marine Bacteria
Denni Catalano, Jessica Mason (Biology, graduate)
The Study of Heroin Through Popular Discourse
Molly Cohn (Education- Elementary, undergraduate)
Conversion of (P-CYM) RU(II) L2 Complexes to (RU(BPY)
Danielle Del Re, Ghady Rahhal, Olivia Gliserman (Biology/Chemistry, undergraduate)
A Novel Assay to Identify Nuclear Receptor Ligands
Kara DeSantis, Aaron Reed (Biology, graduate)
Medieval Spain's Arabic Poetry
Fatima Elmouchtari (Education-Secondary/Spanish)
Rendering Techniques in Costume Design for Theatre
Colleen Heaney (Theatre Arts, undergraduate)
Ligation Independent Cloning of NR LBDS
Marissa Magerkurth, Nicholas DiPaola (Biology, undergraduate)
Eastern Philosophy Meets Western Medicine
Rebecca Marcus (Psychology, undergraduate)
Identification of Microbes in Anoxic Marine Niches
Jessica Mason (Biology, undergraduate)
Kennedy Influence Throughout the 1960's and Beyond
Kara McDermott (English, undergraduate)
Exploring the Hardy Weinberg Equilibrium
Lucia Milla (Biology, undergraduate)
Processing and Advanced Networking in Art
Shotaro Nakano (Art/Sculpture, undergraduate)
Soil Bioremediation Strategy Using Native Fungi
Laurel Okorofsky (Biology, undergraduate)
Production Management
Gayle Riess (Theatre Arts, undergraduate)
Does the Invariance Principle Hold in Baseball
Geoffrey Rohan (Economics, undergraduate)

The Effects of Factory Farms on the Environment
Daniel Santoro, Dana Gioia (Education, undergraduate)
The Effects of Terminalia arjuna on Phytophthora
Orooj Shahid (Chemistry, undergraduate)
Wave Propagation in Dispersive Media
Olga Stulov (Electrical and Computer Engineering/Mathematics, undergraduate)
Shark Project Study of V and Ti Mixed Metal Oxides
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Facile Synthesis of Azetidiness/Pyrrolidines
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Poster session II 5:00-5:45 pm

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Fruit Fly Blue-Belly Beats & Adipokinetic Hormone
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The Development of Russian Counterinsurgency
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Pilgrimage and Santiago De Compostela
Alana Donocoff (History, undergraduate)
Post-Conflict Gender Equality in BiH
Elizabeth Dovell (Political Science & International Relations, undergraduate)
Forest Dynamics
Alicia Fahrner (Biology, undergraduate)
Music and Dance in the African Diaspora
Fredrick Fernandez (New Paltz Honors Program/Black Studies, undergraduate)
Nothing Changes: Satirical Prints by Hank Virgona
Adam Gordon (Art History, undergraduate)
No Child Left Behind and Social Studies Education
James Hadley (Political Science, undergraduate)
Mid-Devonian Arthropod Trackway from the Catskills
Kathleen Hanson, Lauren Parry (Geology/Biology, undergraduate)
The Industrial Revolution and Bio-geochemistry
Lindsay Jankovitz (Anthropology, undergraduate)
Dietary Restriction in Musca domestica
Sushma Kasinathan (Biology, undergraduate)

Understanding Language Loss: Heritage Japanese
Hikari Kawamura (Linguistics, undergraduate)
Exploring Hook-up Experiences of LGBTQ Individuals
Eli Mann, Nikki Venezia, Nicole Giordano, Jacob Julian (Psychology, undergraduate)
SUNY New Paltz's Drive for Local Food
Genevieve Marino (Environmental Studies Minor/Music Major, undergraduate)
The Insecticidal Properties Ofterminalia arjuna
Miles Marnell, Yan Li (Chemistry, undergraduate)
Computer Model of Mickey Mantel's Famous Homeroom
Elijah Nazzaro (Physics, undergraduate)
The Threat of Invasive Plants to the Watersheds
Janice Rich (Biology, undergraduate)
Exploring Hook-up Experiences of Heterosexuals
Lindsay Ruckel, Ashley Stauffer, Emily Phelan, Rebecca Rodriguez, Megan Kenney, Dan Wyld, Julia Donato (Psychology, graduate)
Comparison of P. putida in the Breakdown of PAHs
Ryan Taylor (Chemistry, undergraduate)
Surface Properties of Bdellovibrio bacteriovorus
Michael Wengen (Chemistry, undergraduate)
The Repellency of Pineness Against the House Fly
Eric Werner, Jacob Kuruvilla (Biology/Chemistry, undergraduate)
Simulation of Power Allocation and Task Scheduling
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Shaina Beirne, Nathaniel Rigolino (Biology, undergraduate)
Toward the Synthesis of New Chiral Macrocycles
Shaun Ben-Ari (Chemistry, undergraduate)
Understanding the Melting of a GAAA Hairpin
Cynthia Chow, Lauren Parry (Biology, undergraduate)
Privatization in the Water Sector and Child Health
Sandra Davis (Economics, undergraduate)
Water Quality of the Wallkill River
Steven DiFalco, Ashley Crinieri, and Aisha Saleem (Biology, undergraduate)
Analysis of Dam1 Complex with Proteases
Tsering Dolma (Biology, undergraduate)
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Josh Dorsi, Stephenie George (Psychology, undergraduate)
Effect of Mentor Quality on Mentee Retention
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Is Evolution just a Theory? New Paltz says …..
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The Effectiveness of NGOS at the Security Council
Winnie Hagemeyer Leonardo-Pereira (Political Science, undergraduate)

Steven Barnes: Guilty Until Proven Innocent
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Bio-chemical Characterization of the Dam1 Complex
Aruba Iqbal (Biology, undergraduate)

Crystallization of Dash Complex Proteins
Richard Jean-Louis (Biology/African Studies, undergraduate)

Accent Change in Spanish-English Bilinguals
Janna Losow (Foreign Languages, undergraduate)

Gestural Drift in Indian-English Multi-linguals
Susan Mason, Karen Kessler, Sean Picinich (Psychology, undergraduate)

Biometrics of Metamorphosed Andneotenic Axolotls
Thomas Quinn, Michael Minicozzi (Biology, undergraduate)

Cell Death in A549 Treated with Ru-Based Complexes
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Extract Toxicity: Gram-Neg. and Gram-Pos. Bacteria
Michael Rich (Biology, undergraduate)

Dami Complex Gene Expression in C. albicans
Corrina Ridgeway (Biology, undergraduate)

Hammett Correlation for Hydrolyticst Ability Const
Mary Schappert, Erik Van Vlack (Chemistry, undergraduate)

Active Components of the Defensive Ink of Aplysia
Ester Sherman (Biology, undergraduate)

Little Brother and Sister are Watching
Emily Sobel (Asian Studies, undergraduate)

Relationship Building through Social Networking
Ericka Vales (Communication and Media, undergraduate)

Abstracts

Isotpic Gio-geochemistry of the Mid-Hudson Valley

Linda Amato, (Anthropology/Geology, undergraduate)
Faculty Mentor: Ken Nystrom, Alex Bartholomew (Anthropology, Geology)

Strontium isotope ratios have been used in the archaeological record to reconstruct mobility patterns and to infer the presence of migrants in a population. In order to do this, it is necessary to first establish the biologically available levels of strontium, which is done through the collection of local, non-migratory faunal material. In this project, modern and archaeological faunal remains were collected from locations to reflect the geologic heterogeneity throughout the Mid-Hudson Valley, allowing the researchers to contextualize the strontium isotope results of the Newburgh Colored Burial Ground. Strontium isotope analysis was done by the first author at UNC Chapel Hill's isotopic geochemistry laboratory. The strontium isotope ratios of the modern faunal material clustered as expected; there were, however, unexpected results from the archaeological faunal remains.

The Industrial Revolution and Bio-geochemistry

Lindsay Jankovitz (Anthropology, undergraduate)
Faculty Mentor: Kenneth C. Nystrom (Anthropology)

Isotopes of the earth element strontium (Sr87 and Sr86) are incorporated into the inorganic component of teeth and bones through the diet and have successfully been used in the reconstruction of prehistoric mobility and the identification of non-local individuals. The latter is based on the assumption that the individual consumed a local diet. Technological changes during the Industrial Revolution allowed for the wider distribution of non-local foods and therefore impose an important limitation on the application of this method in modern populations. This project focuses on the growth of transportation during this period and its impact on the examination of the mobility using strontium isotopes for individuals interred in the Newburgh Colored Cemetery (1830-1870). The results indicate that the Industrial Revolution did not have a significant impact on diet until the 1860's and so we can eliminate the possibility that a non-local strontium signature for a specific individual is due to the consumption of non-local foods.

Processing and Advanced Networking in Art

Shotaro Nakano (Art/Sculpture, undergraduate)
Faculty Mentor: Emily Puthoff (Sculpture)

The goal of this research is to investigate the programming environment, Processing, to visualize information gathered by network devices and apply the digital expressions into contemporary fine art. 'Relational art', which is a type of artwork that focuses on human interaction and its social context theorized by Nicolas Bourriaud, is one of the emerging art movements. Situations of the contemporary art are significantly influenced by upheaval of time. Our society has changed dramatically by the introduction of technology, especially advanced telecommunication and transportation. I plan to investigate the relationship between art and society through digital media to capture the dynamic of our world. My research explored the programming languages: Processing, Arduino and PHP. Processing is a productive and flexible programming language that visualizes multiple data gathered through internet with a PHP program and a computer network composed of Arduino microcontrollers. With the combination of the Arduinos and PHP program, Processing collects physical and hyper-information effectively and enriches the contexts and expressions of art. The outcome of this research is an artwork that shows the real-time feedback of dynamics of social changes that are accessible over the internet.

Nothing Changes: Satirical Prints by Hank Virgona

Adam Gordon (Art History, undergraduate)
Faculty Mentor: Reva Wolf

Nothing Changes was inspired by Hank Virgona's own thoughts about the nature of satire and politics. Satire itself is a way of expressing the idea that history is bound to repeat itself, as is suggested by the fact that the same themes consistently appear in visual satire beginning several centuries back. The exhibition examines some of Virgona's satirical prints produced in the 1970s using etching and aquatint. The prints feature military leaders, politicians, and judicial figures, all of whom are caricatured in humorous ways, whether through exaggerated facial expressions or bloated figures. The life and career of Hank Virgona is also explored in relation the prints to better understand the artist and his work. An exhibition of the prints will take place at the Samuel Dorsky Museum of Art in New Paltz that will also include a gallery guide discussing the prints.

Little Brother and Sister are Watching

Emily Sobel (Asian Studies, undergraduate)
Faculty Mentor: Jonathan Schwartz, Kristine Harris
(Political Science/Asian Studies, History/Asian Studies)

This paper addresses the how future leaders in the People's Republic of China will handle information, having been raised between 1990 and 2010 in a heavily-controlled media environment clashing with the rapidly expanding Internet. I review the post-1989 goals and methodologies of the Communist Party of China and the Chinese government's so-called 'thought work' in newspapers and the Internet, with regards to youth between 10 and 29 years old. To describe the past and goals of the leadership, I use a historical/sociological approach, followed by a political analysis of the government bodies in charge of the media currently and the effectiveness of the tactics used. Case studies illustrate several main points: 1) while 'thought work' does manage to stifle many 'though not all' supposedly dangerous news stories, it does little for those who evade the Great Firewall, and equally little to alter most people's opinions; 2) it is very simple in many ways to avoid the imposed media controls, yet youth are not uniting or protesting against these media tools in significant numbers; 3) most of those who do protest, in fact, belong to an older demographic, who tend to avoid using the Internet. The paper then analyzes the possible factors in this perceived apathy of the youth, and makes predictions as to possible outcomes and consequences. I aim to add to the body of research on Chinese youth's views, in order to make more effective policies about relations with these future leaders.

Music and Dance in the African Diaspora

Fredrick Fernandez (New Paltz Honors Program, undergraduate)
Faculty Mentor: Karanja Carrol (Black Studies)

Both culturally and historically, both dance and music has had a significant important to Africans both in the Motherland and Diaspora. Can dance and music also be a voice for social change within the African Diaspora, has it already? Does art have the power to change, to be the voice for the underrepresented and be used to advocate against current social wrongs? I focused my research on several major themes of music and dance within the Diaspora, its existence in Africa, to its move to slavery as it transitioned into the Black Arts Movement, its impact on Africans internationally and its presence in Hip-Hop culture. Using database research, various books that focus on African dance and music as my main method of study, I do conclude that African music and dance has been not just been a voice for social change in the past but is still currently throughout the Diaspora.

Active Components of the Defensive Ink of Aplysia

Ester Sherman (Biology, undergraduate)
Faculty Mentor: Thomas Nolen (Biology)

The marine snail Aplysia californica secretes purple ink mainly containing phycoerythrin, a protein and its chromophore, and phycoerythrobilin, a chromophore, which are obtained from a red seaweed diet. This ink serves as a defense mechanism against the red rock crab. The purpose of this project was to isolate PEB and later determine whether PEB is capable of inducing an action potential in the crab nerve. The general methods used to obtain PE are to filter red algae extract through a chromatography column followed by ultacentrifugal filtration. The results we obtained from the algal extraction were a brightly pink colored solution that we believe is PE. We are currently working on breaking the covalent bond between PEB and the rest of the protein with HCl or hot methanol. This summer we are planning on testing to see whether PEB is capable of activating taste receptors in the crab dactyl and determining if it is an active component in the predator repellent Aplysia ink.

Crystallization of Dash Complex Proteins

Richard Jean-Louis (Biology and African Studies, undergraduate)
Faculty Mentor: Jennifer Waldo (Biology)

Candida Albican is a diploid fungal species commonly found in yeast infections and sexually transmitted diseases. Yeast infections and thrush are a result of Candida Albican strains. They have strategic adaptations such as chromosomal rearrangement which allows its DNA strands to adjust to antibiotics to make the disease immune to medication prescribed by doctors. Crystallizing the proteins of Candida Albican can isolate the proteins that inflict diseases. In previous research, useful information was acquired; certain solutions with a range of pH levels proved to somewhat crystallize and precipitate proteins. Our research required microscopes, pre-packed solutions, proteins, wells, and pipettes. Solutions were made and put into each well; the Candida Albican protein was hung over the well on the tray on a cover slip. Each well contained 1 mL of well solution, the cover slip contained a drop of 1.5 micro-liter of protein, 1.5 micro-liter of well solution, the wells increased in pH from left to right and increased in concentration from top to bottom. The collected data was monitored day by day for signs of progress; the types of data collected were whether the cover slip containing the protein are either precipitate (cloudy liquid), clear, and crystals. During our research certain wells such as a Lithium Chloride solution with a pH of 4 showed promising results. Although we weren't entirely successful in our research, we acquired some useful information for future research.

Analysis of Dam1 Complex with Proteases

Tsering Dolma (Biology, undergraduate)
Faculty Mentor: Jennifer Waldo (Biology)

We are studying the Dam1 complex, a family of DASH complex. These proteins are microtubule-binding sub-complex of the outer kinetochore that is essential for proper chromosome segregation. The Dam1 complex mediates the formation and maintenance of bipolar kinetochore-microtubule attachments by forming closed rings around spindle microtubules and establishing interactions with proteins from the central kinetochore. Our research is looking at two subunits of protein (dad2 & dad3) and what makes them bind or interact. With the use of different protease treatments to find out the binding site of two subunits because the idea is the two proteins that interact will be more resistant to a protease than a protein all alone. Some of the proteins we tested are trypsin, chymotrypsin and elastase; Trypsin is a serine protease found in the digestive system of many vertebrates, hydrolyses proteins thus reducing the size of large protein. This makes them accessible to further degradation by other proteases. Chymotrypsin, is a pancreatic digestive enzyme that catalyzes the hydrolysis of certain proteins in the small intestine into polypeptides and amino acids. Elastase, like trypsin and chymotrypsin, is a serine protease that also hydrolyses amides and esters. It is produced in the pancreas as an inactive and activated by trypsin. Elastase is distinctive in that it acts upon elastin.

Dami Complex Gene Expression in C. albicans

Corinna Ridgeway (Biology, undergraduate)
Faculty Mentor: Jennifer Waldo (Biology)

The Dam1 complex is a group of proteins that associates with the kinetochore during mitotic division within yeast cells, specifically in the human pathogen Candida albicans. Establishing a system to monitor the expression of DAM1 complex genes provides important information about the role of the complex in cell division in different forms of yeast cells, as well as their expression under different conditions. A critical aspect of C. albicans pathogenicity is the ability of its cells to undergo morphological changes from the yeast form to filamentous form. Studying DAM1 complex gene expression in these different forms may therefore help us to elucidate possible genetic contributors to the pathogenicity of C. albicans. Using quantitative real time polymerase chain reaction (qRT-PCR) with RNA extracted from C. albicans cells, we are able to monitor the expression of various DAM1 complex genes simultaneously. After establishing a system in which this application can be used with high reliability, it is then possible to monitor DAM1 complex gene expression when cells are grown under a variety of different conditions. This contributes to our understanding of the role of the Dam1 complex in C. albicans.

Bio-chemical Characterization of the Dam1 Complex

Aruba Iqbal (Biology, undergraduate)
Faculty Mentor: Jennifer Waldo (Biology)

Candida albicans is a human fungal pathogen that causes yeast infections. In this yeast, there exists a unit, the Dam1/DASH complex, which assists in the separation of the chromatid in the anaphase step of cell division. This complex is made up of 10 proteins that interact together to allow this crucial step in mitosis. Our research focuses on the biochemical properties of three of the Dam1 complex subunits- dad1, dad2, dad3. Initially, we exposed these protein units to different conditions that addressed their thermostability, sensitivity to salts and buffers, and hydrodynamic properties. It was found that the dad1 protein did not denature when heated. By understanding the biophysical and biochemical characteristics of the proteins, we hope to better understand their essential and integral role in cellular division of the yeast. Currently, we are analyzing the multimerization of these proteins by subjecting them to cross-linking agents. Additionally, the protein subunits have been exposed to different experimental conditions such as varying temperatures, pHs, and salt concentrations to ascertain whether they affect complex formation. Together, these results provide a foundation for the determination of the structure of the Dam1 complex through X-ray crystallography and give us important insights as to how the complex assembles in cells and its function in cellular division.

4- OP Profoundly Disrupts Regeneration in Planaria

Mevluda Arifova, Tyler Carson, Mary Schappert, Elena Oldendorf (Biology, undergraduate)
Faculty Mentor: Spencer Mass (Biology)

4-Octylphenol (4-OP) is an industrial surfactant which is known to be a xeno estrogenic environmental endocrine disruptor. While not a steroid itself, 4-OP has been shown to act as a low affinity E2 receptor agonist in vertebrates in a fashion similar to bisphenol-A (BPA), to have estrogenic effects in mollusks, and has been associated with a variety of developmental abnormalities across phyla. Here we demonstrate that 4-OP has profound effects in regenerating planarians across a range of concentrations from delaying wound healing and retarding blastema development to inducing peculiar morphological abnormalities. Transected animals from a fissiparous strain of D. tigrina were treated with 4-OP using DMSO as a vehicle at concentrations ranging from nanomolar to millimolar.At high concentrations, the animals did not fully heal and were unable to regenerate, frequently resulting in death. At lower concentrations, the animals were capable of delayed wound healing, delayed blastema formation and delayed regeneration but were frequently not able to regenerate normally. Interestingly, the effects of 4-OP could be ameliorated with co-administration of the E2 antagonist 4-Hydroxy tamoxafin. This strongly suggests involvement of an E2 receptor-like pathway and mimics what we have previously seen with other estrogen disruptors like BPA.

Dos Dependent Alternation of Regeneration with BPA

Tyler Carson, Mevlude Arifova, Mary Schappert, Elena Oldendorf (Biology, undergraduate)
Faculty Mentor: Spencer Mass (Biology)

Bisphenol-A (BPA) is a plasticizer which is known to be a xeno estrogenic environmental endocrine disruptor.BPA is a low affinity E2 agonist. Here we demonstrate that BPA has dose dependent effects in regenerating S. mediterranea (planaria). Planaria have an amazing capacity to regenerate themselves from mere fragments. From previous work done in our lab we know that at higher concentrations, regeneration is delayed or completely disrupted. In this study, transected animals from a fissiparous strain of S. mediterranea were treated with BPA using DMSO as a vehicle at very low concentrations ranging from 0.0001 to 0.1 M. We find that at lower concentrations, the animals showed accelerated regeneration compared to water controls. In all cases, either the kinetics of regeneration and/or the morphology of the resulting animal was strikingly and characteristically abnormal. These results corroborate earlier work done in Dugesia tigrina and suggest BPA has these effects in multiple species of freshwater flatworms.

Biometrics of Metamorphosed Andneotenic Axolotls

Thomas Quinn, Michael Minicozzi (Biology, undergraduate)
Faculty Mentor: Spencer Mass (Biology)

The axolotl, Ambystoma mexicanum, is a critically endangered salamander in the Tiger salamander complex that is native to Mexico. Axolotls are neotenic: they become sexually mature while maintaining their larval form (i.e. they do not normally undergo metamorphosis from the aquatic larva to a terrestrial adult). In the case of the axolotl, metamorphosis fails to occur because they have a mutation which prevents TSH (thyroid stimulating hormone) from being produced; as such, they do not make thyroid hormones which are responsible for triggering normal metamorphosis. However, spontaneous mutations or administration of exogenous thyroid hormones can cause the axolotl to undergo metamorphosis. The resulting adult form has different anatomical and physiological features than their neotenic counterpart. In an effort to understand some of these differences, we compared the skeletal biometrics of metamorphosed mutant and wild-type neotenic axolotls, including the comparative sizes, proportions, and compositions of their skeletons. As a corollary to this study, we prepared skeletal mounts of the axolotls for donation as specimens to the New Paltz Biology Department and optimized a procedure for isolating, cleaning, preserving, and mounting vertebrate skeletons as specimens for future application.

Extract Toxicity: Gram-Neg. and Gram-Pos. Bacteria

Michael Rich (Biology, undergraduate)
Faculty Mentor: Maureen Morrow (Biology)

The species in the domain Bacteria can be split into two major categories: Gram-negative and Gram-positive bacteria. Their differences lie in the make-up of their cell wall and cell membrane configuration. Over history, plants have adapted a defense mechanism to combat invading microbes of either distinction by producing their own chemicals. The overall goal of this study is to test the toxicity of two plant extracts on species of these two different types of bacteria, Escherichia coli and Staphylococcus aureus, respectively. This work uses the Minimum Inhibitory Concentration assay to quantitate plant extract toxicity. The bacterial cells are exposed to serial dilutions of the extract in a 96 well plate. E. coli, a Gram-negative bacterium, has shown a survival rate of 100% with a Psoralea corylifolia extract concentration of 13g/mL using this technique; the highest concentration we were able to use. The toxicity of an extract from Heracleum maximum will be presented as well. Comparison of these results could provide insight as to differences in toxicity in Gram-negative and Gram-positive bacteria. Because Gram-negative and Gram-positive bacteria differ in their cell wall on many aspects, such as, arrangement and composition of proteins, toxic effects of two extracts should differ between these two cells. These extracts, which have known eukaryotic cell toxicity, may play a larger role in anti-microbial activity of certain species of bacteria common in human society.

Cell Death in A549 Treated with Ru-Based Complexes

Sanjana Reddy, Aisha Saleem (Biology, undergraduate)
Faculty Mentor: Maureen Morrow, Daniel Freedman (Biology, Chemistry)

Precious metal based drugs such as cisplatin have been used clinically as anticancer agents. Ru complexes have also been studied for anticancer activity with the hope of finding lower general toxicity and greater stability than cisplatin. We have synthesized one Ru compound [(p-cymene)Ru(CH3C(O)CHC(N-o-CO2Ph)CH3] with an LC50 similar to that of cisplatin, but unlike cisplatin, this compound does not bind DNA. Therefore, we are interested in determining the mechanism of cell death that is induced by this compound. We assayed [(p-cymene) Ru (CH3C(O)CHC(N-o-CO2Ph)CH3] treated A549 for apoptotic markers using the fluorescence-based Alexa Fluor 488 Annexin V assay and the colorimetric based Streptavidin HRP and DAB solution assay. Phosphatidylserine (PS) is a phospholipid in the cell membrane that translocates from the inner cell membrane to the outer cell membrane when apoptosis occurs. Annexin V is a 35.8-kDa protein that has a strong affinity for PS and binds to the exposed PS in the outer membrane of apoptotic cells. Treated cells were stained with the Alexa Fluor 488 dye (conjugated to recombinant Annexin V) and propidium iodide (PI) and observed with a fluorescence microscope with GFP and TRITC filters for Annexin V binding and PI, respectively. In the colorimetric assay, Streptravidin HRP binds to nucleotides, which are detected using the diaminobenzidine (DAB) solution. Using this procedure, apoptotic nuclei are stained brown. The results of these assays will be presented.

Dietary Restriction in Musca domestica

Sushma Kasinathan (Biology, undergraduate)
Faculty Mentor: Aaron T. Haselton

Dietary restriction, the reduction in calorie and/or protein intake, has been shown to prolong lifespan in nearly all organisms, from yeasts to rodents. However, according to a study published in 2004, calorie restriction was reported to decrease rather than increase the lifespan of the male house fly, Musca domestica. In this research, we examined the effects of three well-characterized diets that have been shown to modulate lifespan in the fruit fly, Drosophila melanogaster, on male and female house flies. Although our results for male house flies are inconclusive, our results show that the median lifespan for female house flies fed a nutrient and calorie-rich diet is significantly less than that for female flies on normal or nutrient and calorie-restricted diets. Our results indicate that experimental technique and not an unusual physiology is likely responsible for the previous published anomalous findings on house flies and dietary restriction.

Fruit Fly Blue-Belly Beats & Adipokinetic Hormone

Leila Crisson, Aruna Puthota (Biology, undergraduate)
Faculty Mentor: Aaron Haselton (Biology)

Homeostatic regulation of blood sugar levels is an essential physiological process in both vertebrate and invertebrate animals. In the fruit fly, Drosophila melanogaster, ingested nutrients initially pass through the crop, a specialized muscular storage region of the alimentary canal before they are digested. The mmetabolic neuropeptide, adipokinetic hormone (AKH), acts as a functional homolog of the mammalian hormone glucagon in D. melanogaster, raising available hemolymph glucose levels. AKH has been immunolocalized to nerves running along the passageway leading to the crop in the fruit fly, suggesting a myotropic function for this peptide hormone. Using microvideographic techniques and an in situ bioassay, we have observed crop activity upon exposure to AKH. Analysis of these data revealed a qualitative effect of AKH on crop contractions. To obtain quantitative measurements that could support these initial observations, we will use suction electrodes to record membrane potentials of crop muscle fibers exposed to AKH. These data will add to our current understanding of the neuropeptidal control of the insect foregut and alimentary physiology.

The Study of Marine Bacteria

Denni Catalano, Jessica Mason (Biology, graduate)
Faculty Mentor: Jason Valens (Biology)

Bacterial diversity in marine microenvironments is not well understood. The objective of this research was to elucidate the microbial populations present within micro-niches associated with South Pacific live rock specimens. It is known that in closed systems, live rock will consume dissolved organic matter (DOM) rapidly primarily via the nitrogen cycle, but the species participating in marine nutrient cycling is unknown. Because tropical reef environments are severely nutrient-limited, we hypothesized that the species diversity of bacteria would be limited due to the low nutrient conditions present in the water column. To examine the identities of bacteria present, we isolated biofilms located on the surface of live rock. We extracted the genomic DNA from these samples using a direct extraction method. Touchdown PCR was used to amplify 16S genes using universal primers which amplify bacterial species present within our samples. Once the target 1.4kb fragment was obtained, we cloned them into the sequencing vector pCR4-TOPO. 140 positive clones were obtained and sequenced commercially. 74 were known species and 66 were unknown. In terms of relative abundance, we observed about 4 major genera of bacteria in our sample along with over 100 single-hit species. Species diversity was much higher than expected. Future research will look at the microbial communities associated with anoxic interior pores of live rock in hopes of establishing a community profile of live rock.

Identification of Microbes in Anoxic marine Niches

Jessica Mason (Biology, undergraduate)
Faculty Mentor: Jason Valens (Biology)

The microbiology of coral reefs is presently poorly understood. Our lab has previously identified bacteria present in surface biofilms of live rock, the foundation of coral reef structure. The nature of nutrient processing in terms of nitrogen cycling entails a final step, denitrification, dependent on anaerobic metabolic processes. In order to obtain a full community-level analysis of live rock bacteria, we aim to elucidate the microbial community structure of live rock anoxic microenvironments present within interior pores of live rock and compare it with the communities present in the surface biofilms. We employed direct genomic DNA extraction methods to material collected from the interior of live rock. This heterogeneous genomic DNA was subjected to touchdown PCR using universal bacterial and archaeal 16S ribosomal gene primers. These PCR fragments were cloned into a sequencing vector and a genomic 16S gene library was constructed. Clones were analyzed for the target insert. We currently await sequence information and predict that bacteria capable of the denitrification step of the nitrogen cycle will be present.

A Novel Assay to Identify Nuclear Receptor Ligands

Kara DeSantis, Aaron Reed (Biology, graduate)
Faculty Mentor: Jeff Reinking (Biology)

The primary goal in development of this binding assay is to determine ligands for orphan nuclear receptors of any origin. This assay utilizes inherent biochemical properties of nuclear receptors, in that once bound, the nuclear receptor's stability increases. With an increase in stability, the temperature at which the nuclear receptor protein denatures also increases. This assay employs the use of an RT-PCR machine to detect the thermal denaturation point of proteins by detecting an environmentally-sensitive fluorescent dye. By expanding this assay to include the nuclear receptor with and without a variety of potential ligands contained within a 96-well plate, it is possible to screen the nuclear receptor for ligands in a high throughput fashion. We validated this assay by using the ligand binding domain (LBD) of the human estrogen receptor (ER) for which ligands are well known.

Ligation Independent Cloning of NR LBDS

Marissa Magerkurth, Nicholas DiPaola (Biology, undergraduate)
Faculty Mentor: Jeffrey Reinking (Biology)

The Nuclear Receptor (NR) superfamily is the greatest known family of transcription factors in eukaryotic organisms. NRs have a common domain structure that includes a ligand binding domains (LBD) with conserved configurations. When LBDs bind their ligands, they have the ability to influence the physiology of the cell by activating or deactivating transcription of genes targeted by the NR. The urochordata Ciona intestinalis (sea squirt) is a tractable model organism to study with one of the smallest known genomes of any chordate. The overall goal of our project is to identify ligands for C. intestalis orphan nuclear receptors. A ligation-independent cloning technique has been used to produce several vectors for the heterologous expression of NR LBDs in bacteria.

Soil Bioremediation Strategy Using Native Fungi

Laurel Okorofsky (Biology, undergraduate)
Faculty Mentor: Hon Ho, Megan Ferguson (Biology/Chemistry)

Fungi are biological allies. Their use in soil remediation, for rehabilitating environments contaminated with heavy metals, may be more economically and biologically responsible than traditional methods such as transport of soil to a landfill and/or thermal treatment on site. The purpose of this research project was to determine whether three species of fungi, two of which are native to the New Paltz, NY area, could be used to neutralize heavy metal contamination. Human activities, such as strip mining, release heavy metals like lead and cadmium directly into the water supply. The application of copper arsenate fungicides to local apples orchards a generation ago left in its wake a toxic layer of soil beneath the drip-line of decades-old apple trees. Waves of mycelia, the fungal mats that grow beneath the mushrooms commonly seen above ground, are known to have the ability to neutralize PAH (polycyclic aromatic hydrocarbons) to non-toxic components. The mechanisms utilized by the fungi are not well understood, but certain strains of mushrooms have survived millennia due to their inherent ability to adapt. Three species of saprophytic mushrooms were grown, exposed to increasing concentrations of heavy metals, and measurements taken using flame atomic absorption spectroscopy. Results would be presented.

Forest Dynamics

Alicia Fahrner, (Biology, undergraduate)
Faculty Mentor: Carol Rietsma (Biology)

The aim of this research is to examine the influence of prescribed fire and protection from browsing by white-tailed deer on species regeneration in a chestnut oak forest ecosystem. A pre-burn study in eight plots with 10-meter diameters was performed by Guiliano and Rietsma in the summer 2009. A prescribed burn was conducted on May 7, 2010, and post-burn data were collected between June and August 2010. Mature trees consisted predominantly of red oak and chestnut oak. The status of saplings and previously tagged seedlings was determined as either dead or alive and sprouts at the base of each plant were counted. Red maple and red oak saplings survived the best and had the highest numbers of sprouts. Chestnut oak and red oak seedlings experienced the smallest decrease in numbers and also had the highest numbers of sprouts. Height and cover of all shrub species, but especially of mountain laurel, were substantially lower after the prescribed burn. Depth of organic matter was also substantially lower after the prescribed burn. Canopy cover decreased slightly in all plots.

The Threat of Invasive Plants to the Watersheds

Janice Rich (Biology, undergraduate)
Faculty Mentor: Carol Reitsma (Biology)

If invasive plants out-compete the native herbaceous plants and seedlings of the watershed forest, the natural filtration of the delicate biosphere in the watershed could be jeopardized allowing for increased turbidity, higher levels of phosphorus, pathogens and viruses, leading to poor water quality in the reservoir which would directly affect the drinking water in New York. This project was conducted in order to identify and exterminate swallowwort (Cynanchum rossicum) plants that are invading the Papacton watershed forest and to begin formulating a plan to protect the New York City watersheds from invasive plant species. In July 2010, the Papacton watershed was surveyed for swallowwort and identified plants were treated with the herbicide Glyphosate. After two treatments and three total surveys it was found that although many of the mature plants had been killed by the herbicide, numerous new seedlings had appeared. Similar to other invasive plants, swallowwort can overpower native flora and create a monoculture that reduces biodiversity and threatens the natural filtration of the soil. Increased erosion caused by a reduction in native plant species and a lack of root density can increase turbidity and pathogen levels in the reservoirs. One way to prevent this is to ensure that the riparian buffer system remains healthy and well vegetated with native flora. The swallowwort project was only the start of a much needed plan for protecting our watersheds from invasive species.

Didymophenia geminata: An Algae that Seizes Creeks

Shaina Beirne, Nathaniel Rigolino (Biology, undergraduate)
Faculty Mentor: David Richardson (Biology)

Didymosphenia Geminata is a nuisance algae species that thrives in streams and rivers. It is commonly referred to as didymo or rock snot, this colorful name is due to the blooms that are phlegm-like mats of growth on the bed of streams. The blooms appear tan to dark brown in color and have a wet cotton ball texture. In the past 2-4 years, didymo has rapidly spread too many streams throughout New York State, including the Esopus Creek, Delaware River, and Rondout Creek. Didymo has just been discovered in the Rondout as of early 2011, while the Esopus is has had didymo blooms since 2009. The objective of this research is to identify the driving factors which trigger didymo to switch reproductive behavior from low abundance to high abundance and frequency. This was achieved by recording the water chemistry, which included pH, conductivity, total dissolved solids, and temperature and identifying didymo cells on rock samples at two streams, the Rondout and Esopus. The Rondout site produced a bloom weeks before the Esopus site. A comparison of both these rivers will reveal many of the unanswered questions about this accelerated algal species.

Water Quality of the Wallkill River

Steven DiFalco, Ashley Crinieri and Aisha Saleem (Biology, undergraduate)
Faculty Mentor: David Richardson (Biology)

Freshwater ecosystems are essential to human well-being, but are also highly vulnerable to direct and indirect effects of human activities. Lakes and streams provide water for drinking, irrigation and industry, support a diverse array of plants and wildlife, and provide substantial recreational opportunities. We seek to quantify the level of sediment and phosphorus that runs into a focal water source from the surrounding watershed: the Wallkill River and its tributary in New Paltz, NY. We tested water samples weekly and processed samples for conductivity, temperature, pH, suspended sediment and dissolved phosphorus. The more human developed areas have higher concentrations phosphorus and seston, possibly due to runoff collecting fertilizers or chemicals and increased erosion due to human activities. The Wallkill River averaged a more basic composition, 9 on pH scale. Discharge (water flow) varied in the Wallkill over time due to seasonal changes in temperature and weather patterns like storms. Discharge affects water chemistry and health; rainwater dilutes the salts coming from the landscape and human sources. There is also a possibility that disturbances in the stream flow, such as ponds and marshes, cause a decrease in total suspended particles; likely due to a deposition of such particles before the water flows on. Stream conservation and restoration efforts rely on the spatial and temporal determination of the sources of non-point source pollution, like in this study.

The Repellency of Pineness Against the House Fly

Eric Werner, Jacob Kuruvilla (Biology/Chemistry, undergraduate)
Faculty Mentor: Aaron Haselton, Preeti Dhar (Biology/Chemistry)

The house fly, Musca domestica, is a common non-biting nuisance fly that is capable of transmitting pathogens to humans and non-human animals. Using chemoreception, the fly is able to differentiate between potentially acceptable substrates. Upon finding a suitable medium, the fly can transmit pathogens via mechanical transmission, regurgitation, and/or defecation. Many strategies designed to control this insect vector employ repellent compounds that exhibit mammalian toxicity. Insect repellents derived from natural products may be more desirable than currently available synthetic repellents, provided they possess lower toxicity and equivalent repellant properties. We have developed a behavioral bioassay using a Y-tube olfactometer to determine if -pinene (both enantiomers), a plant secondary metabolite, is repellent to the house fly. Individual five-day-old adult house flies were introduced into the Y-tube olfactometer and exposed to pinene solution and vehicle control odors. The initial pathway chosen by the fly was recorded. Individuals of the same age were also introduced into a cylindrical contact bioassay where they were subjected to pinene in its most repellent concentration. Total time spent on either surface (control or repellent) was recorded. Our study revealed that solutions of S and R – pinene repelled adult male and female M. domestica at most concentrations tested.

Conversion of (P-CYM) RU(II) L2 Complexes to (RU(BPY)

Danielle Del Re, Ghady Rahhal, Olivia Gliserman (Biology, Chemistry, undergraduate)
Faculty Mentor: Daniel Freedman (Chemistry)

Due to the lethal health-implications attributed to cancer, a vast amount of research has been directed towards developing anti-tumor complexes. The aim of this project was to investigate the mechanism of ruthenium-based anti-tumor complexes by measuring the total amount of ruthenium taken up by the cells. We developed a new fluorescence-based assay for ruthenium which takes advantage of the emission of [Ru(bpy)3]2+. The assay was based on converting ruthenium complexes into the highly emissive [Ru(bpy)3]2+. Two compounds, [(p-cym) Ru (CH3C(O)CHC(N-o-CO2Ph)CH3)] and [(p-cym)Ru(ethylenediammine)Cl]PF6, were investigated. [(p-cym)Ru(CH3C(O)CHC(N-o-CO2Ph)CH3)] was refluxed with bipyridine overnight in order to convert it into [Ru(bpy)3]2+ . The extent of conversion was determined by fluorescence spectroscopy. Quantitatively complete conversion was observed for Ru concentrations ranging from 0.2 mM to 1 mM. We also performed the same reaction in a microwave oven. Similarly, [(p-cym)Ru(ethylenediammine)Cl]PF6 was successfully converted into [Ru(bpy)3]2+ , but under different reaction conditions.

Understanding the Melting of a GAAA Hairpin

Cynthia Chow, Lauren Parry (Biology, undergraduate)
Faculty Mentor: Pamela M. St. John (Chemistry)

Hairpins composed of oligonucleotides containing a GAAA tetraloop and from three to five complements in the stem have been used as a model to understand the stability of secondary structure found commonly in RNA viruses. However, the unusually high stability of the intramolecular interaction in the hairpin makes it difficult to obtain melting temperatures for these sequences. UV-Vis spectroscopy was used to understand how formamide alters the melting temperatures for these structures and melting curves were obtained as a function of hairpin concentration to verify that only intramolecular interactions were involved in the melting process. In addition, alternative bases (LNAs) were used in various regions of the hairpin model to understand the interaction between nucleotides in this structure. Melting curves were compared to estimate stability when LNAs were substituted into the loop, stem, and end regions of the hairpin.

Exploring the Hardy Weinberg Equilibrium

Lucia Milla (Biology, undergraduate)
Faculty Mentor: Diego Dominici (Mathematics)

The Hardy-Weinberg equation is a very useful tool for biologists in finding the frequency of a particular gene within a population. In this presentation, we will be looking at the Hardy-Weinberg equation from a biological viewpoint as well as a mathematical one. Some examples will be provided.

Redox and Structural Stability of Oxyvita Hemoglobin

Raneen Rahhal, Joe Branco (Chemistry, undergraduate)
Faculty Mentor: John Harrington (Chemistry and Engineering)

Hemoglobin-based oxygen carriers (HBOC) are blood substitutes which mimic the function of blood by carrying/transporting oxygen to tissue. Storage of HBOC is crucial for its use in a wide range of climatic environments. Ideally, storage should not require refrigeration. Depending on available storage facilities, undesirable changes may include, oxidation of the heme moiety, structural unfolding of the protein and/or loss of O2 carrying capacity. OxyVita Hb, a zero-linked polymeric bovine hemoglobin, is a new generation HBOC that is presently stable for up to five years frozen at -80C. Improved storage can be achieved by conversion of the oxyHb to a CO form. Stability at ambient temperature up to 10 months has been achieved to date. Structural stability is observed, methemoglobin levels are significantly reduced, and no change in molecular size is observed. This study has focused on the structural properties of oxy, CO and metHb forms by determining the resistance to unfolding in the presence of high concentrations of urea, In addition, we are studying the kinetic rates of two different oxidizing agents on HbO2 and HbCO. Spectral analysis in the visible region allows us to use specific changes in the absorption spectra that are distinct to the oxygenated, carboxy and methemoglobin forms of hemoglobin. The two oxidizing agents being used are K3Fe(CN)6 and NaNO2. Previous research, as well our own, shows that K3Fe(CN)6, oxidizes hemoglobin at a much faster rate, than NaNO2.

Surface Properties of Bdellovibrio bacteriovorus

Michael Wengen (Chemistry)
Faculty Mentor: Megan A. Ferguson (Chemistry)

Bdellovibrio bacteriovorus can exist as either a host dependent (HD) predator of a variety of Gram-negative bacteria, or a host independent (HI) bacterium that feeds on extracellular nutrients. AFM analysis of live cells in buffer was used to examine the surface properties of HI Bdellovibrio. Bacteria were immobilized with the use of polylysine coated microscope slides. HI Bdellovibrio biofilms were also probed directly. In addition to measuring stiffness, force curves from chemically functionalized (-(CH2)12CH3and - (CH2)12COOH) AFM tips were used to evaluate adhesion, hydrophobicity, charge, and the acid/base properties of HI Bdellovibrio. Experiments done on biofilms of HI Bdellovibrio demonstrate that the tip-cell adhesion values are a factor of 10 greater when a hydrophilic tip is used instead of a hydrophobic one.

Comparison of P. putida in the Breakdown of PAHs

Ryan Taylor (Chemistry, undergraduate)
Faculty Mentor: Megan Ferguson (Chemistry)

Pseudomonas putida is a bacterium known for its ability to degrade polycyclic aromatic hydrocarbons, compounds that are known to cause cancer and that are very hard to break down in the environment. This research compares two strains of P. putida (ATCC; 17484, 17514) in their ability to degrade anthracene and naphthalene in the presence of sodium salicylate, sodium glutamate, or no additional carbon sources. The study shows that P. putida 17484 and 17514 degrade anthracene the fastest when in the presence of glutamate. The given strains of P. putida could not be directly observed in the degradation of naphthalene due to contamination of other bacteria in the naphthalene stock. However, the bacteria that were present in the naphthalene were shown to degrade it the best in the presence of glutamate. Currently GC-MS and atomic force microscopy are being used for PAH quantification and determining cell characteristics for each sample.

Facile Synthesis of Azetidiness/Pyrrolidines

Varun Talanki, Hashim Al-Mashat, Kara Heard, Juan De Jesus (Biology, undergraduate)
Faculty Mentor: Preeti Dhar (Chemistry)

Four/Five-membered rings are synthetically challenging targets with many potential uses in medicinal chemistry due to their rigid well-defined structures. However, their uses are currently limited by the lack of available methods for the stereocontrolled synthesis of substituted derivatives. This is particularly true for highly substituted azetidines which are of considerable interest in a wide range of medicinal chemistry projects in the pharmaceutical industry, but are difficult to access using existing chemistry. In this project we are particularly interested in developing new synthetic routes to substituted azetidines. We hope to introduce faster and more efficient pathways to synthesize azetidines/pyrrolidines which could decrease costs while maintaining the desired properties. The introduction of an azetidine ring into a lead compound structure, in place of a piperidine ring for example, can often impart greater metabolic stability whilst maintaining high levels of activity. Recent research has also shown that azetidines can be useful for Tuberculosis treatment and as general antibiotics. Azetidine and pyrrolidine compounds can be synthesized with different functional groups at different positions to produce unique compounds. We have synthesized substituted azetidines and pyrrolidines starting from alkenes in a three step process and are currently standardizing conditions. This work will be presented in the poster.

Shark Project Study of V and Ti Mixed Metal Oxides

James Sutherland, Nicholas Hanson, Darryl Steffen, Tatiana Yeargin, Rachel Kaminski, Fatima Hosain (Chemistry,)
Faculty Mentor: Daniel Freedman (Chemistry)

The SHArK (Solar Hydrogen Activity Research Kit) project aims to find a combination of mixed-metal oxides to act as a photocatalyst for splitting water into hydrogen and oxygen. The focus of this work is to verify the SHArK methodology as a viable survey of potentially suitable semiconductor materials. The effect of several d-block metal oxides in combination with TiO2, a known photocatalyst under UV light, has been studied. Binary combinations of Ti in W, Mo, V, Nb, and Fe have been deposited via pipette as anionic salts onto FTO glass slides and fired at 500C to produce mixed metal oxides. Combinations of 9 mol% Ti in Fe and 3 mol% Ti in W show photocurrents of more than three times those of the Fe oxide internal standards; these data are supported by other reported methods in the literature which use different starting materials. Vanadium/copper oxides were also investigated using ammonium metavandate as the vanadium precursor; a strong response was observed at a positive bias for a range of compositions. An inkjet printer deposition method has also been developed to test for other metals as well. The SHArK ScanStation is used to evaluate these materials as potential photocatalysts.

The Effects of Terminalia arjuna on Phytophthora

Orooj Shahid (Chemistry, undergraduate)
Faculty Mentor: Preeti Dhar and Hon Ho (Chemistry and Biology)

There have been a few reports suggesting that the plant Terminalia arjuna contains certain fungus growth inhibiting properties. Fungicides in powdered form are usually composed mostly of sulfur and are very toxic. Fungicide residues have been found on food for human consumption, mostly from post-harvest treatments. Some fungicides are dangerous to human health. Research suggests that Terminalia arjuna, on the other hand, is useful in alleviating the pain of angina pectoris and in treating heart failure and coronary artery disease.
Terminalia may also be useful in treating hypercholesterolemia. This medicinal herb was introduced to several different species of the Phytophthora family and the dishes with the fungi and arjuna were left to grow for a few days. After a specified amount of time, there does seem to be some amount of inhibition in the growth of the sporangia of the species. After obtaining the results of this experiment, it is reasonable to believe that the Terminalia arjuna does have an effect on the growth of Phytophthora, and that more experimentation can be done to further understand which stages of development are affected.

The Insecticidal Properties Ofterminalia arjuna

Miles Marnell, Yan Li (Chemistry, undergraduate)
Faculty Mentor: Preeti Dhar, Aaron Haselton (Chemistry)

The control of crop damaging insects is of vast importance to the food supplies of the world's population. Also of significance is the biological safety of insecticidal agents with respect to human health. The tree Terminalia arjuna has been used in the traditional medicine of India for thousands of years, and shown to possess beneficial properties for heart health, as well as in the treatment of cancers, in numerous studies. This plant has been suggested in one study to possess insecticidal properties against a lepidopterous insect. In this investigation, the bark of Terminalia arjuna was extracted with ethanol by Soxhlet method, and concentrated in vacuo. This crude extract was incorporated into the diet of Drosophila melanogaster larvae in concentrations of 25, 50, and 100 mg/ml to assess growth inhibitory and pupation delay affects. At the 100mg/ml level, a 75% reduction in larval growth with respect to control, as well as a doubling of time until pupation, was seen.

Hammett Correlation for Hydrolyticst Ability Const

Mary Schappert, Erik Van Vlack (Chemistry, undergraduate)
Faculty Mentor: Frantz Folmer-Andersen (Chemistry)

Previously, we developed a 1H NMR-based method for studying the acylhydrazone condensation of benzaldehyde derivates in D2O, which allows for the simultaneous determination of the equilibrium constant for acylhydrazone formation (K) and the acidity constant for the conjugate acid of the acylhydrazine nucleophile (Ka). However, the initial application of this technique was limited by the low water solubility of most commercially available benzaldehyde derivatives. In order to address this issue, we prepared a series of seven benzaldehyde derivatives containing a hexaethylene glycol monomethyl ether moiety (-(CH2O)6CH3) as a solubilizing group, in addition to various substituents in the meta and para positions. NMR studies of the condensation of these aldehydes with acetic hydrazide (CH3CONHNH2) confirmed the general expectation that electron-withdrawing substituents enhance the thermodynamic stability of the corresponding acylhydrazone. It was further discovered that the Hammett equation correlates the data well for both the meta and para series, providing rho values that are positive and greater than unity in both cases. This indicates that the aromatic substituents influence the ionization of benzoic acid and the acylhydrazone condensation in similar fashion, with the latter equilibrium being more sensitive to their affect.

Toward the Synthesis of New Chiral Macrocycles

Shaun Ben-Ari (Chemistry, undergraduate)
Faculty Mentor: Frantz Andersen

We describe efforts toward the synthesis of a series of macrocycles such that contain both trans-1,2-diaminocyclohexane (DACH) and 1,1 -bi-2-naphthol (BINOL) subunits situated along a single two-fold rotational symmetry axis. The target molecules are an elaboration of simpler macrocycles that contain a DACH subunit joined through flexible ethylene glycol linkages, which we have previously prepared and found to be effective NMR chiral shift reagents for mandelic acid (MA) derivatives. By installing the BINOL group, we hope to increase the conformational rigidity of the molecular cavity, thereby improving its capacity for enantioselective molecular recognition. Additionally, the presence of two stereogenic subunits (DACH and BINOL) within a macrocycle allows for diastereomers to be prepared, which are expected to have different molecular recognition capabilities. The fluorogenic BINOL group may also serve as an optical reporter of carboxylic binding, which may ultimately enable the fluorescence-based determination of enantiomeric excess of MA samples, which holds several advantages over chiral shift reagents. To date, we have successfully synthesized one such BINOL-containing macrocycle in low yield, and are in the process of pursuing variants on a multi-gram scale.

Relationship Building through Social Networking

Ericka Vales (Communication and Media, undergraduate)
Faculty Mentor: Daniel Schackman and Patricia Sullivan (Communication and Media)

This is an analysis of relationship building as a user-motivation towards social networking. This paper focuses on the way we learn and build communities in the digital era. Using Facebook as a case study, this analysis will be conducted in respect to the uses and gratifications theory and the theory of connectivism. These theories will be applied to the diaspora concept, and the idea of communities existing both online and in the real world. The Filipino diaspora, as observed through Facebook, will lead to a better understanding of why social media is useful and influential.

Steven Barnes: Guilty until Proven Innocent

Stephanie Inserra (Communication and Media: Concentration in TV/Radio, undergraduate)
Faculty Mentor: Gregory Bray; Eve Waltermaurer; Jeff Miller
(Communication and Media; Sociology; Honors Program)

Steven Barnes from Marcy, NY, was convicted of rape and murder in the 1985 Kimberly Simon case. He was sentenced to 25 years to life in prison. With help from the Innocence Project based out of New York City, DNA samples were re-tested, and Barnes was found completely innocent in the Simon case. In January 2008, after almost 20 years in prison, Barnes was released. The documentary will include interviews with Steven Barnes and his lawyer who worked on his case in the Innocence Project. There will be b-roll of Barnes working with his youth construction group, pictures of Barnes and his family upon his release, and his welcome home party. There will also be footage from local TV news programs showing Barnes being brought into the courtroom on the day of his exoneration. Overall, the beginning of the documentary will be Barne's story, his time spent in jail, and his life afterward, told through his interview, while the second half of the documentary will explore the Innocence Project's part in the case and how they were able to free Barnes.

Simulation of Power Allocation and Task Scheduling

Yanzhao Yang (Computer Science, graduate)
Faculty Mentor: Keqin Li (Computer Science)

This project is to do a simulation of power allocation and task scheduling algorithms with power or time constraint, which is an emerging field of green computing. It is well known that the development of computers has always been pursuing high performance for a long period. However, as performance is increased dramatically, power consumption has also increased surprisingly according to Moore's law. With energy pressure, it is necessary to find a balance between power consumption and performance optimization, in order to minimize the impact on the environment. According to actual demands, there are two optimization problems to be studied here: 1. Minimizing Schedule Length with Energy Consumption Constraint;
2. Minimizing Energy Consumption with Schedule Length Constraint. It is assumed in this project that there are a set of independent sequential tasks, and a multiprocessor computer with several identical processors, and all the processors have the same set of available frequencies and speeds. A simulation program is developed and several algorithms are applied to solve each problem by different ways of power allocation and task scheduling. The performance of the algorithms is compared with each other.

Does the Invariance Principle Hold in Baseball

Geoffrey Rohan (Economics, undergraduate)
Faculty Mentor: Hamid Azari-Rad (Economics)

Revenue sharing was introduced into baseball after the 1994 season in order to increase the competitive balance. The invariance principle states that revenue sharing has no impact on competitive balance between opposing teams. Revenue sharing has been the subject of much research and criticism in baseball. Much of the criticism stems from the fact that each team currently pays 34 percent of local revenues into a common pool which is divided evenly among all teams, without a salary cap in place. It has been shown in past research that teams are not using these shared revenues to increase payroll expenditures, and therefore, talent. This is due to the lack of a salary cap. This paper aims to examine if the invariance principle holds and whether there is two-way causality between revenue and win percentage. An Ordinary Least Squares regression model is used to conduct the research. The dependent variable used is win percentage. The main, significant independent variables are revenue and payroll expenditure. It is found that revenue sharing has a positive but small impact on the competitive balance among teams. This leads many skeptics to believe that the current revenue sharing system is flawed and is not working to increase the competitive balance. In finding out that revenue sharing does have an impact on the competitive balance, it is then possible to discuss alternatives and possible modifications to the largely ineffective, current revenue sharing system.

Effect of Mentor Quality on Mentee Retention

Whitney Dudley (Economics, undergraduate)
Faculty Mentor: Azari-Rad (Economics)

Using a sample of Army Captains and their Lieutenant Colonel raters, this research estimates the marginal effect of mentorship quality on Army Officer quit behavior with reduced form regressions. The Linear Probability Model (LPM) and the Probit model are employed with controls for all pertinent and available individual-level variables regarding the Officers and their Mentors, which includes demographic variables and pecuniary and non-pecuniary benefits. It is found that the marginal effect of mentor quality on mentee retention is positive, significant, and remains fairly stable. The results are compatible with marginal utility theory which states that individuals make decisions as if they maximize their expected utility. As such, utility theory predicts that Army Officers receiving more utility from military service, measured by mentorship quality, are more likely to make the decision to stay. The model estimates that Army Officers with high quality raters are 8.16% more likely to remain with the Army six years after the end of the mentorship period. This finding is consistent with previous mentorship effects research.

Privatization in the Water Sector and Child Health

Sandra Davis (Economics, undergraduate)
Faculty Mentor: Hamid Azari-Rad (Economics)

The privatization of state-owned enterprises was one of several key strategies implemented by transitioning and developing countries in the 1990s who aimed at liberalizing their markets and attracting foreign investment. Among the targeted sectors were the electricity, telecommunication, and water public utilities industries. As access to clean water is essential to human survival and well-being, the privatization of such a delicate commodity has been the topic of much controversy especially with respect to the effect of higher water prices on poorer populations. This paper examines the impact of privatization in the water utility sector in Sub-Saharan Africa on several measures of child health. A difference-in-difference regression model is utilized to investigate health outcomes between privatized and non-privatized municipalities in Mozambique, Senegal, Tanzania, and Zambia. To control for unobserved municipal and household characteristics which could influence health, several covariates are included to proxy for levels of municipal technical capacity and household wealth. This study finds that the privatization of water does not play considerably large role in explaining the incidence of diarrhea, height for age, weight for age, and weight for height in children; though in some cases privatization does have a statistically significant impact. Additionally, access to piped water was found to decrease as a result of water privatization in every country except Senegal.

The Effects of Factory Farms on the Environment

Daniel Santoro, Dana Gioia (Education, undergraduate)
Faculty Mentor: Brian Obach (Sociology)

The factory farms of today provide a low-cost means of producing a large quantity of food. However, as a byproduct, this luxury produces grave consequences for the environment. The industry of factory farming is a major contributor to the world's rapidly increasing rate of deforestation. Vast stretches of forest are destroyed, via the slash and burn process, to clear land for feed to be grown for factory farmed animals. The slash and burn process proves severely detrimental to biodiversity and to the ozone. The soil of the deforested land is swiftly degraded as a result of losing its natural protection and as a result of unsustainable methods of farming. The excessive amounts of wastes produced by factory-farmed animals also play a large role in environmental degradation. These wastes are stored in large holes dug in the ground, known as lagoons, which often leak, rupture or overflow, releasing the toxic wastes into the ground and water. Even when such unfortunate events do not occur, the wastes emit noxious chemicals into the air as they break down, contributing to factory farms being the leading cause of global warming. However, there are steps that farmers, lawmakers and ordinary individuals alike can take, in order to reduce the harm currently being done to our environment. This essay will serve as the first step towards a more optimistic future for our environment; by informing it's audience of the consequences of factory farming.

The Study of Heroin Through Popular Discourse

Molly Cohn (Education- Elementary, undergraduate)
Faculty Mentor: Kate McCoy (Educational Studies)

Neoliberal discourse underlies many of the United States' economic, social, and political institutions. Rooted in what is conceived as a laissez-faire market, with free reign and minimal restrictions, the modern discourse of rugged, individualistic privatization has infused itself into popular thought. Policies and laws, as well as modern institutions and their regulations are carried out through the lens of this school of thought, and all reflect conceptions of the capitalistic value system that is embedded in the American way. In particular, the policies, laws, and institutions, as well as the popular and perpetual perception of drug use are indicative of this system that values consumerism in a framework of self-governance and individual responsibility. Drug policy and treatment shaped through the language of this discourse produce situations in which access to treatment is scarce and prison is likely, situations that perpetuate a cycle through use, criminalization without treatment, and thusly, more use. The purpose of this study is to examine the modern popular discourse of heroin use and abuse, as well as the social and political response it makes possible through Critical Discourse Analysis and Michael Foucault's method of examining the relationship between truth, knowledge, and power.

Medieval Spain's Arabic Poetry

Fatima Elmouchtari (Education-Secondary / Spanish)
Faculty Mentor: Isidoro Janeiro (Foreign Language)

Ibn Arabi and Ibn Al-Farid's Inner Journey: Loss and Absence in Medieval Spain's Arabic Poetry Memory images induce the reawakening of the past, accentuate the absence of the desired object in the present, and make present what is lost to the future. Medieval Arabic poetry documents how the poetic voice tries to maintain present through language what is absent. In these poetic productions, we find that the memory image of the desired object stirs a wide range of sensorial memories and experiences, which torment the poet, who, in turn, expresses his grief and lament. In my research, I compare two Muslim mystic poems written by Ibn Arabi de Murcia and Ibn Al-Farid, and Medieval (IX-XII century) Spain's lyrical production known as Moaxajas and Jarchas, which utilized a mixture of highly formal Arabic diction and more commonly spoken local Arabic. This research explores the similarities within the symbolic language used by the poetic voices to express the grief and the sense of loss caused by the absence of the desired object. Also, it explores how these poets use symbolic language to convey the complexity of the mystic experience. This project presents examples of Arabic poetic creations from Medieval Spain to support the purpose of this study.

Wave Propagation in Dispersive Media

Olga Stulov (Electrical and Computer Engineering, Mathematics)
Faculty Mentor: Mohammad R. Zunoubi, Natalie Cartwright (Engineering & Mathematics)

In this presentation, we give an overview of how numerical analysis is applied to Maxwell's equations to provide a finite-difference time-domain (FDTD) algorithm for the propagation of electromagnetic plane wave pulses through dispersive material. The accuracy and limitations of the method are discussed. The algorithm is used to study the transmission of pulses through an air-dielectric interface.

Kennedy Influence Throughout the 1960's and Beyond

Kara McDermott (English, undergraduate)
Faculty Mentor: Fiona Paton, Susan Lewis (English, History)

The Kennedys are arguably the most influential family of the 1960s, and their politics and culture dominated many aspects of the generation. While they represented a new hope and were perceived as a royal family, beneath that romantic image were many progressive and era-shaping policies. The purpose of this study was to move beyond from the Kennedy's Camelot image to better understand the politics of America during the 1960s and to discern the Kennedy's democratic influence beyond into the modern times. By looking into JFK's proposed policies, influential speeches, his plans for Vietnam, the Bay of Pigs circumstance, and establishment of many programs such as the Peace Corps, it is clear that he inspired the youth rebellion of the later 1960s as well as set a standard for United States politics. Some methods of study used were observing the Kennedy family's image in the media and juxtaposing the findings with JFK's political achievements during his presidency. By a study of such an efficacious family, the Kennedys, we can penetrate beyond their royal image to see the family's influence throughout history.

The Sedimentary Record of Louisa Pond, Esopus, NY

Chris Callinan (Environmental Geochemical Science)
Faculty Mentor: John Rayburn (Geology)

Louisa Pond is a small, eutrophic pond situated atop the Shaupeneak Ridge in the town of Esopus, New York. Two sediment cores were collected in February, 2011. The first was obtained with a Russian peat borer to a depth of 4.5 m and the second using a vibracorer to a depth of 9.0 m. The stratigraphy of the sediments records a complete post-glacial history of the pond. The vibracore had fibrous organic sediments (peat bog) at the top with a total thickness of 7.17 m, and below them was 1.31 m of open lake silts and clays. The core reached glacial till at 8.48 m depth. Sub-samples were taken every 20 cm, and analyzed for loss on ignition. The samples were dried then heated in a furnace at 550C and then 1000C to quantify weight percent organic carbon and inorganic carbonate content respectively. The increase in organic content up core demonstrates the eutrophication of the lake through time. The Russian core was entirely composed of organic fiber and was sub-sampled at 10 cm intervals. These samples were digested with nitric acid and the resulting supernatant liquid was analyzed for lead concentration using the Thermo Scientific ICE300 Flame Atomic Absorption Spectrometer. This information was used to demonstrate the record of atmospheric lead concentration. The rise in lead levels corresponds to the invention and increased use of automobiles, and the peak lead concentration in the core represents the mid 1970's when leaded gasoline was phased out in the United States.

SUNY New Paltz's Drive for Local Food

Genevieve Marino (Environmental Studies Minor/ Music Major, undergraduate)
Faculty Mentor: Brian Obach (Sociology)

Locally grown food is an underutilized resource that successfully internalizes many of the costs not contained within the dollar price of industrial food. I analyze SUNY New Paltz's attempt to increase its local food purchases. Through interviews with individuals working in local small-scale food businesses, as well as Sodexo, the large-scale global food service provider that services SUNY New Paltz, I unravel the complexities involved in utilizing proximate resources. Participants expressed differing views concerning the scale of the industry, market preference, customer base (individuals or institutions), and ability to compete with larger businesses. Many expressed a need for customer awareness and appreciation of the worth of cost internalization and higher quality food. Partnering with institutions such as New Paltz has generally been instrumental in the growth of these businesses. Many obstacles, such as lack of resources, high production costs, consumer demand for product specialization, and higher price, have prevented smaller businesses from competing with the larger businesses Sodexo already purchases from. However through the internalization of costs, local farms often provide higher quality products while avoiding severe negative environmental and economic consequences. Purchasing local food is economically and ecologically sustainable, and, despite current laws and economic practices favoring large scale production, it is possible to implement in institutions.

Accent Change in Spanish-English Bilinguals

Janna Losow (Foreign Languages, undergraduate)
Faculty Mentor: Navin Viswanathan (Psychology)

Several studies have shown that phonetic and phonological categories of English and Spanish interact in bilingual speakers (e.g., Flege, 1995). Specifically, these categories appear to shift towards the characteristics of the ambient language (Sancier & Fowler, 1997). We studied how these categories change in a short-term bilingual interaction by recording the production of two Spanish-English bilingual instructors before, during, and after a classroom interaction. Their speech was analyzed along dimensions shown to be different in Spanish-English bilinguals (Goldstein, 2001). Our analyses showed that speakers' productions demonstrated changes towards the ambient English phonology along certain dimensions. However, such migration was not uniform across all dimensions. We found a complete absence of the voiced alveolar fricative (/z/), implying that the instructors retained certain features of Spanish. Speaker 1 distinguished the tense vowel from the lax vowel by using a combination of formant frequencies and vowel length (similar to native speakers of English), whereas the speaker 2 only used vowel length to make this distinction. This result is interesting because speaker 2 has resided in the USA for a longer period of time than speaker 1 indicating that length of residence in an English speaking country might not be a sufficient indicator of accent change. We suggest that an examination of social and sociological factors is required to completely understand accent change.

Mid-Devonian Arthropod Trackway from the Catskills

Kathleen Hanson, Lauren Parry (Geology and Biology, undergraduate)
Faculty Mentor: Alex Bartholomew and Aaron Haselton (Geology and Biology)

The Middle-Upper Devonian Catskill Delta sediments of New York State preserve some of the earliest complex terrestrial ecosystems anywhere on the planet. Contained within the strata of the Catskill Delta are the remains of the world's oldest fossil forest, the Gilboa Forest, along with the first spiders, centipedes, and various other terrestrial arthropods. A recent discovery along the Catskill Front in Katterskill Clove has yielded a diplichnities-type trace fossil in a purely terrestrial environment. The stratigraphic position of this trace is slightly lower than the previously mentioned well-known fossil arthropods found in Schoharie County farther to the north and west. This trace is a slightly meandering track-way approximately 1.5-2cm wide and extends for over 30cm in total length, with the distance between the individual track-marks ranging from 1 to 3mm. This trace fossil is hypothesized to represent tracks made by a large terrestrial arthropod that lived on fluvial plane of the Catskill Delta. This project aims to better determine the nature of the trace maker along with elucidating the paleoecological interactions of early terrestrial arthropods by designing and carrying out a series of experiments using modern arthropod analogues and simulated sedimentary environments.

An Exercise in Racial Discourse

Grace Watson (History, undergraduate)
Faculty Mentor: Reynolds Scott-Childress, Beth Wilson (History, Art History)

Preliminary Thesis Title: An Exercise in Racial Discourse: The Birth of a Nation, D.W. Griffith's Controversial Classic. This thesis is an investigation of the racial discourse in America, examined through the lens of D.W. Griffith's 1915 silent film, The Birth of a Nation. The hateful facts of the film were derived from Griffith's personal experiences and the cultural sensibilities of a bygone era. Contextual reality doesn't make Griffith's portrayal of black Americans right or moral, but it doesn't mean the film should be dismissed entirely either to Birth, whereas the majority of first-time viewers today react negatively to the film's racial content; only a select few continue to venerate the movie. Through my research I found no recent articles championing the cinematic form of Birth over distress at the film's content. Most scholarly articles I've encountered were lightly appreciative of the film's groundbreaking editing techniques and strongly concerned with its racial content, using the film to perpetuate a racial discourse defined by negative talking points. This practice keeps racial discourse within the realm of a problem to be overcome instead of a malleable reality in a nation as ethnically heterogeneous as the United States. The racial discourse in America is flawed. Deeper than the superficial nuances of the popular lexicon enveloping the subject, the heart of the problem is the continuation of the discussion on hostile grounds.

Pilgrimage and Santiago De Compostela

Alana Donocoff (History, undergraduate)
Faculty Mentor: Hamilton Stapell (History)

Pilgrims have been traveling to Santiago de Compostela since the tenth century when the city was first created. The city was designed around the cathedral that holds the bones of Saint James. The entire city has been classified as one of the holiest sites in Christendom because of this relic. During the Medieval Period, hundreds and thousands of Christians made pilgrimage to Santiago de Compostela. The Medieval Period was a deeply religious time period and, as time progressed, religion became less and less important until, in modern times, religion has become obsolete to many people. However, thousands of people are still visiting Santiago de Compostela and making the pilgrimage. My paper is going to address two main research questions. How does pilgrimage exist in the secular world of modern times compared to the very religious world of the Middle Ages when Santiago de Compostela was at its most popular? By comparing modern times to the Medieval times it helps to create a strong contrast to show how religious views and life have changed over time. The second question I plan to address is how did pilgrimage shape the city that Santiago de Compostela has become and does it still have such a strong affect in modern times?

Understanding Language Loss: Heritage Japanese

Hikari Kawamura (Linguistics, undergraduate)
Faculty Mentor: Oksana Laleko (Linguistics)

Heritage languages are spoken by second-generation immigrants whose exposure to the native language was interrupted by a switch to the dominant language of the community at an early age. Such language contact results in structural changes in the heritage language as a result of external factors (the cross-linguistic influence of the dominant language) and internal systematic shifts. In order to discover the underlying linguistic principles guiding the restructuring of a heritage language in the context of intergenerational language loss, we examine shifts in the grammatical system of heritage Japanese. Following earlier cross-linguistic studies of language acquisition and attrition, which focus on narrative discourse, we use a picture book about a boy and his frog (Mayer, 2003) to obtain production data from 4 heritage Japanese speakers and 4 baseline Japanese speakers. We find that heritage Japanese speakers exhibit systematic syntactic deviations from the baseline, including restriction in the word order patterns, simplification/shift of directional particles, omission and non-target-like use of case markers (-ga.NOM, -o.ACC, -ni.DAT), and shifts in the distribution of topic and subject markers (-wa.TOP and -ga.NOM). This study offers important implications for understanding intergenerational language shift as a systematic and rule-governed process.

Computer Model of Mickey Mantel's Famous Homeroom

Elijah Nazzaro (Physics, undergraduate)
Faculty Mentor: Richard Halpern (Physics)

A Computer Model of Mickey Mantle's Famous Tape Measure Home Run In 1953, at Griffiths Stadium in Washington, DC, Mickey Mantle hit one of the most extraordinary home runs in the history of baseball. It went over the roof of the stadium, and, despite hitting a rooftop lamp tower, landed 562 feet from its starting point. This research project is an attempt to determine how fast, and at what angle, it left the bat. The computer is used as a virtual laboratory in which different angles and initial velocities are tried out until a trajectory whose range is 562 feet is produced. The poster explains the underlying physics, the equations used to model the ball's flight, and the numerical methods used to deal with the coupled differential equations that must be solved.

No Child Left Behind and Social Studies Education

James Hadley (Political Science, undergraduate)
Faculty Mentor: Sue Books and Joel Lefkowitz (Secondary Education and Political Science)

This essay explores the impact of the No Child Left Behind Act (NCLB) on social studies education in the United States. The essay analyzes scholarly literature, which shows that NCLB is not conducive to social studies education, and plays a role in decreasing the emphasis placed on social studies. The essay also utilizes interviews with educators to gain the opinion of professionals the field about the impact of NCLB on social studies education in the classroom, and gain insights into possible solutions for improving social studies education policy at the national level.

Post-Conflict Gender Equality in BiH

Elizabeth Dovell (Political Science and International Relations, undergraduate)
Faculty Mentor: Kathleen Dowley (Political Science and International Relations)

Proponents for a greater female presence in politics claim that a gender-balanced society is a necessary component of democracy and a peaceful civilization. Closing the gender gap, it is argued, leads to more prosperous and stable societies. The purpose of this study is to examine the post-conflict condition of women in Bosnia and Herzegovina (BiH). I compare the pre- and post-conflict status of women in BiH with other former Yugoslav states, maintaining special consideration of the ethnic and socioeconomic imbalance between women with regards to political representation. Additionally, I examine the current mechanisms used for gender equality in the region and how they might be improved. I conclude with specific recommendations for improving the status of women in BiH.

The Development of Russian Counterinsurgency

Anna Dluzniewska (Political Science & International Relations, undergraduate)
Faculty Mentor: Lewis Brownstein (Political Science & International Relations)

The armed conflict in Chechnya is a forgotten war of the 21st century. Russia, a global hegemon with a prominent position in the United Nations Security Council, successfully discouraged its Western counterparts from interfering with what she sees as an internal problem. In my research I am addressing the issue of the influence the Wehrmacht Eastern Front anti-partisan campaign of World War II had on the current practices of the Russian armed forces in Chechnya. I am tracing the developments of Soviet (and later Russian) counterinsurgency strategy, as growing numbers of Nazi techniques were utilized by the authorities in Moscow. A comparative analysis of the practices of the superior adversaries in both conflicts allows me to examine to what extent the atrocities suffered in one conflict can be used as a lesson on how to commit atrocities in a future one. While the Eastern Front of World War II is a well-researched and described subject, the war in Chechnya is virtually unknown to Western readers. Russian Special Forces have done a good job blocking any form of access to the war-torn areas. Therefore, to a large extent, I have to rely on journalistic accounts. Currently these are the only available material on the Northern Caucasus. I hope my research will contribute not only to the deeper understanding of the almost twenty yearlong conflict in the Caucasus, but above all, to the understanding of the phenomenon of the transformation from a victim into a perpetrator.

The Effectiveness of NGOS at the Security Council

Winnie Hagemeyer Leonardo-Pereira (Political Science, undergraduate)
Faculty Mentor: Serife Ilgu Ozler (Political Science)

International governmental organizations (IGOs) like the United Nations are often the target of international non-governmental organizations (INGOs) lobbying in their attempt to influence world policies. While advocacy work at every level of IGOs is important to advance an INGOs goals, influencing decisions at the highest level of the UN, the Security Council, can lead to significant impacts on these issues. The literature on Global Civil Society and its relation with IGOs often covers the access these organizations have, but tends to lack an in-depth analysis of the extent of an INGO's influence on major world policies. Bearing this in mind, this study aims to analyze the effectiveness of INGO lobbying efforts at the UN Security Council with the intent of proving that INGOs are only able to effectively influence the Council when their goals align with member states national interests. Realist and constructivist theories will be used to provide a theoretical base for such argument, and will be complemented with thorough analysis of Security Council resolutions along with interviews with INGO staff members, who have first-hand experience in the area. The conclusions from this study can lead to a better understanding of the relationship between IGOs and INGOs and the level of influence the latter is able to have through its work.

Deserving or Delusional: Job Over-Qualification

Elena Brondolo, Carrie Sauer (Psychology, undergraduate)
Faculty Mentor: Doug Maynard (Psychology)

The purpose of this study is to gain more knowledge on how personality affects job satisfaction and perception. We hypothesize that narcissism will moderate the relationship between perceived over-qualification and job satisfaction so that the relationship will be stronger at higher levels of narcissism. Furthermore, narcissism will moderate the relationship between perceived over-qualification and objective over-qualification, such that the relationship will be stronger at lower levels of narcissism. Narcissists may feel that they deserve promotions and need to switch to higher positions, because they are looking for new audiences for their actions. Participants for this study include non-faculty staff at SUNY New Paltz as well as residents of a co-op in Manhattan. Our method for conducting this research includes an online survey comprised of the Narcissistic Personality Inventory-16, the Scale of Perceived Over-qualification, the Job In General and Job Descriptive Index. We expect that our findings will support our hypothesis that a higher a score of narcissism will be related to a higher score of perceived over-qualification and therefore a lower score for job satisfaction. It is also expected that if there is a higher level of narcissism then there will be a greater discrepancy between perceived over-qualification and objective of qualification.

Eastern Philosophy Meets Western Medicine

Rebecca Marcus (Psychology, undergraduate)
Faculty Mentor: Raymond Schwarz, Alice Andrews (Student Affairs/Psychology)

This is a critical literature review; it will explore the history and illustrate the mind body connection, its relation to Eastern Philosophy and its place in the future of Psychology. It will explore the use of mindfulness and positive emotion in psychotherapy and clinical psychology. It will look at the beneficial effects that these practices have on an individual's physical, emotional and mental health and well-being. It takes into consideration what the future of psychology holds in relation to the use of these theories. The integration of psychology and primary care often referred to as Health psychology or Primary care psychology is just beginning, but seems to be a futuristic direction for both psychotherapy and health care. Research indicates that there may be a need for the use of Eastern Philosophies such as meditation, yoga and mindfulness in this integrated system. These practices are often regarded as spiritual or religious and inturn not seen as legitimate. This review will also make connections as to why these practices should be seen as credible and beneficial.

Exploring Hook-up Experiences of Heterosexuals

Lindsay Ruckel, Ashley Stauffer, Emily Phelan, Rebecca Rodriguez, Megan Kenney, Dan Wyld, Julia Donato (Psychology, graduate)
Faculty Mentor: Melanie Hill (Psychology)

Hooking-up or casual sex in non-committed relationships is a relatively new phenomenon in the U.S that seems to be replacing traditional dating practices. Hooking-up includes behaviors such as: kissing, groping, petting, oral, penile and vaginal sex. A variety of psychosocial factors have been linked to sexual behaviors such as sexual assertiveness, self-esteem and body image. The present research builds upon previous work by examining the impact of these factors on hooking-up behaviors. Specifically, the current study inquires about heterosexual individuals hooking-up behaviors and explores potential factors relating to frequency of hook-ups, number of partners, and positivity/negativity of hook-up experiences.

Exploring Hook-up Experiences of LGBTQ Individuals

Eli Mann, Nikki Venezia, Nicole Giordano, Jacob Julian (Psychology, undergraduate)
Faculty Mentor: Melanie Hill (Psychology)

Research has suggested that the dating scene for young adults in the U.S. has changed. Instead of dating, many young adults in the U.S. are engaged in hooking-up or casual sex in uncommitted relationships. Hooking-up can include a variety of activities such as kissing, groping, petting, oral, penile, and vaginal sex. There is a small but growing base of research on this topic; however, often when this topic is studied, these behaviors are perceived as risky, or predominately negative. More importantly, the existing research looks exclusively at the experiences of heterosexual cis-gender individuals. Using both qualitative and quantitative methodology, the present study explores hook-up experiences of lesbian, gay, bisexual, and transgender individuals. We explore how self-esteem, sexual assertiveness, and body image esteem are related to frequency of hooking up, number of hook-up partners, and positive and/or negative hooking-up experiences. Transgender participants are asked how their transgender identity influences their hook-up experiences.

Gestural Drift in Indian-English Multi-linguals

Susan Mason, Karen Kessler, Sean Picinich (Psychology, undergraduate)
Faculty Mentor: Navin Viswanathan (Psychology)

Though the Critical Period Hypothesis suggests that linguistic stimuli do not affect a speaker's production after the critical period, contemporary research suggests otherwise. Studies of bilinguals changing language environments show that speech production in both the speakers' L1 and L2 can be affected by the phonology of the language spoken where they have recently lived. This has been demonstrated in studies of Portuguese-English, French-English, and Spanish-English bilinguals. Our experiment will test this in multi-linguals that do not speak a romance language as their L1. We seek to examine trilingual Hindi-Telugu-English students in their production of English segments. Participants will be separated into two groups-- those recently in a Telugu/Hindi-speaking environment, and those who have remained in an English-speaking environment. We will record participants as they read sentences designed to elicit particular phonological segments, and will examine these in a variety of phonetic environments. The data will be measured for variables such as voice onset time, vowel length, and formant frequency. We expect that the participants' production of certain phonemes will change depending on their recent language environments. We suggest that studies such as ours have the potential to inform accounts of bilingual language use through the examination of new language environments.

The Effects of Sinewave Speech on the Irrelevants

Josh Dorsi, Stephenie George (Psychology, undergraduate)
Faculty Mentor: Navin Viswanathan (Psychology)

The Irrelevant Speech Effect (ISE) is the finding that performance on serial recall tasks is impaired by the presence of background speech, even if the participants are asked to ignore the background speech (Colle and Welsh, 1976). Interestingly this effect persists (though weaker) when the speech is incomprehensible (e.g., foreign language (LeCompte, Neely & Wilson, 1997) or nonsense syllables (LeCompte, Neely & Wilson, 1997). One explanation for this finding is that speech carries more information than other sounds (LeCompte, Neely & Wilson, 1997). Another explanation is that more complex sound signals cause more recall disruption. In our study, we examine what qualities of the acoustic signal are essential to produce ISE by using sinewave speech backgrounds. In sinewave speech the glottal source is replaced by time varying sinusoidal signals that capture the frequency distribution of the speech signal (Remez 1981). Sinewave speech is ideal because it is perceptually bistable heard as speech by some subjects and non-speech by others. It has been demonstrated that sinewave speech comprehension has no effect on recall accuracy. This study compared recall accuracy in sinewave speech conditions as well as conditions with selectively reversed sinewave speech. Selectively reversed sinewave speech is in all cases incomprehensible but retains all the signal complexities of standard sinewave speech. We found that standard sinewave speech causes more recall disruption than select.

Is Evolution just a Theory? New Paltz says …..

Brenna Fearey (Psychology/Biology, undergraduate)
Faculty Mentor: Spencer Mass (Biology)

A 2009 Pew Research Center poll found that only 32% of the American public believes that humans and other living things evolved due to natural processes, and 31% responded that humans and other living things have existed in their present form since the beginning of time. In the same survey 22% of Americans said that evolution may have occurred but it was guided by a supreme being. A survey administered to non-science majors in the Evolution for Everyone GE course at SUNY New Paltz during 2010 and 2011 finds that nearly 35% believe Evolution is just a theory, while approximately 58% responded that Evolution is a scientific fact and more than 50% agreed that the theory of evolution has been tested many times and always 'supported by the evidence. It appears that while our students seem slightly better informed than the general public, there remains skepticism and controversy surrounding Darwin's ideas. This study looks at attitudes and beliefs about science and evolution among non-science majors at SUNY New Paltz.

Production Management

Gayle Riess (Theatre Arts, undergraduate)
Faculty Mentor: Ken Goldstein (Theatre Arts)

Theatre is a collaborative art; I have worked to discover a way to facilitate that process. A Production Manager is someone who helps coordinate the schedules of all the departments as well as making sure all areas will be ready for tech week and opening night. A production manager is also in charge of budgeting for all areas. In order to stay on task gathering large amounts of information about the production from various sources and organizing it in a neat and efficient way is a necessity. By taking part in this project, I have learned how important it is to keep on track of all changes in schedule. I have also learned how crucial communication is when working with many different people and personalities. Most importantly, I learned that in order to do this job well, you have to be able to trust yourself and be okay with learning from mistakes.

Rendering Techniques in Costume Design for Theatre

Colleen Heaney (Theatre Arts, undergraduate)
Faculty Mentor: Andrea Varga (Theatre Arts)

The Purpose of my study was to research and try out different techniques of costume rendering for the stage, and to be flexible with my style and vary the appearance of my renderings depending on what play I work on. By studying the different styles of clothing illustration from historic time periods, cultures, different costume designers in theatre and film as well as contemporary fashion design sketches, I practiced creating sketches with different media and making each look different while still creating a cohesive look in all of my sketches that would allow anyone looking at them to know that they all belonged to the same production and were work of the same designer. Working with a director and my faculty mentor, I created a cohesive look for the Main stage production of Spike Heels here at SUNY New Paltz, using what I learned and my style of illustration. By doing the research and work on Spike Heels I was able to develop a personal style all my own that could be adapted to each project I take on in preparation for my next project.

Publication Opportunities for Undergraduates

Valley Humanities Review is currently seeking essays in the humanities for publication in its Spring 2010 Issue. Please visit http://www.lvc.edu/vhr for more information.

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Pittsburgh Undergraduate Review PUR is a multidisciplinary journal that accepts papers from around the world. http://136.142.181.181/~pur/index.php

Undergraduate Journal for Global Business and Community, offers undergraduate students a venue for publishing works http://jgbc.fiu.edu/index.html

The Dialectics Undergraduate Journal of Leadership, Politics, and Society aim is to promote undergraduate discourse and scholarship and to encourage students to pursue and engage in thoughtful discourses on topics of societal importance.
http://www.abington.psu.edu/dialectics/index.html

Pi Sigma Alpha Undergraduate Journal of Politics built a reputation for publishing outstanding research by undergraduate students. http://web.ics.purdue.edu/~psalpha/journal/call.html

Issues in Political Economy is committed to supporting and encouraging quality undergraduate research in all areas of economics. http://www.elon.edu/e-web/students/ipe/journalinfo.xhtml

Undergraduate Economic Review aimed at promoting high quality undergraduate research
http://titan.iwu.edu/%7Eecon/uer/index.html

Critique provides a forum for graduate and undergraduate students of politics to express and exchange diverse ideas and to imagine new possibilities for democracy and justice
http://lilt.ilstu.edu/critique/default.htm

Michigan Journal of Political Science The Michigan Journal of Political Science (MJPS) is one of the premier undergraduate political science journals in the country.
http://www.umich.edu/~mjps/

Journal of Science and Health a the University of Alabama - JOSHUA includes topics with societal or ethical implications, emerging methodologies or fields, et cetera.
http://www.bama.ua.edu/~joshua/index.htm

The Penn Bioethics Journal is the nation's premier peer-reviewed undergraduate bioethics journal. http://bioethicsjournal.com/about.html

BIOS to publish their undergraduate biology work http://www.tri-beta.org/publish.html

IMPULSE is the first international, online neuroscience journal for undergraduate publications. http://impulse.appstate.edu/

The Indiana Undergraduate Journal of Cognitive Science invites submissions of original writing by undergraduate students. Submissions may come from any area within Cognitive Science http://www.cogs.indiana.edu/icogsci/instructions.html

Undergraduate Research Journal for the Human Sciences The URC Undergraduate Research Journal is an annual online national, reviewed journal dedicated to the publication of undergraduate student research. The twofold purpose of the journal is to foster and reward the scholarly efforts of undergraduate human sciences students as well as to provide a valuable learning experience. http://www.kon.org/CFP/cfp_urjhs.html

Journal of Psychological Inquiry We are proud to be one of the few journals to accept contributions exclusively from undergraduate students. http://jpi.morningside.edu/index.htm

The Undergraduate Psychology Journal (UPJ) at the University of California Los Angeles is a publication which features outstanding research work performed by undergraduate students at UCLA and around the country http://www.studentgroups.ucla.edu/upj/

The Yale Review of Undergraduate Research in Psychology is an annual journal that showcases the best and most original research in psychology conducted by undergraduates from around the world. http://www.yale.edu/yrurp/

Psi Chi Journal of Undergraduate Research a national, fully reviewed, quarterly journal dedicated to the publication of undergraduate psychology student research. http://www.psichi.org/pubs/journal/default.aspx

Caltech Undergraduate Research Journal
http://www.topgrad.com/caltech_undergraduate_research_journal.htm

The Caltech Undergraduate Research Journal (CURJ) publishes the best undergraduate research submissions from around the world in the form of science news and feature articles.

Journal of Young Investigators JYI's web journal (which is also called JYI) is dedicated to the presentation of undergraduate research in science, mathematics, and engineering. http://www.jyi.org/about/

Morehead Journal of Applicable Mathematics MEJAM accepts papers which are outside the realm of the typical undergraduate curriculum and which emphasize the applicability of mathematics while maintaining significant mathematical interest. http://www.moreheadstate.edu/mejam/index.aspx?id=5096

Rose-Hulman Undergraduate Mathematics Journal is devoted entirely to papers written by undergraduates on topics related to mathematics http://www.rose-hulman.edu/mathjournal/index.php

National Undergraduate Research Clearinghouse Any scientific manuscript. They can be empirical studies or literature reviews. http://www.webclearinghouse.net/help.php

Journal of Undergraduate Chemistry Research is a new peer review journal that will be published quarterly with papers of original research performed by undergraduates. http://www.vmi.edu/show.aspx?tid=36955&id=2214&ekmensel=8f9c37c3_156_160_2214_3

Journal of Undergraduate Research in Physics is a peer-reviewed journal of the Society of Physics Students (SPS) for archiving research conducted by undergraduate physicists. http://www.jurp.org/call_for_papers.html

The Journal of Undergraduate Research in Physics (JURP) is a peer-reviewed, online journal of the Society of Physics Students (SPS) and Sigma Pi Sigma, the physics honor society http://www.jurp.org/about_jurp.html

American Journal of Undergraduate Research A refereed journal for undergraduate research in the pure and applied sciences, mathematics, engineering, technology, and related areas in education. http://www.ajur.uni.edu/

Catalyst: Rice Undergraduate Science and Engineering Review http://catalyst.rice.edu/ Submissions for reviews will be accepted from undergraduate students who have performed science or engineering research at any international university or research institution laboratory.

History Matters An Undergraduate Journal of Historical Research

http://www.historymatters.appstate.edu/index.html

The Allegheny Review, now going into its 27th year of publication, is one of America's few nationwide literary magazines dedicated exclusively to undergraduate works of poetry, fiction, creative nonfiction, and art http://webpub.allegheny.edu/group/review/info.html

The Oswald Review An International Journal of Undergraduate Research and Criticism in the Discipline of English http://www.usca.edu/english/pubs/oswald/oswald.html

Young Scholars in Writing: Undergraduate Research Young Scholars in Writing: Undergraduate Research in Writing and Rhetoric, a peer-reviewed journal for undergraduates.

http://cas.umkc.edu/english/publications/youngscholarsinwriting/index3.html

2010 SURE Award Recipients

Brendan Oldham Art Education 2011 Mentor: Anat Shiftan, Art
Cone 2 Clay and Glaze Development

Shotaro Nakano Art 2011 Mentor: Emily Puthoff, Art
Arduino Microcontrollers and Interactive Art

Thomas Quinn Biology 2012 Mentor: Frantz Folmer Andersen, Chemistry
New Diamine Macrocycles as Chiral Shift Reagents

Steven Difalco Biology 2013 Mentor: David C. Richardson, Biology
Water Quality of a Human Affected Ecosystem

Michael Marone Biology 2011 Mentor: Megan Ferguson, Chemistry
Pseudomonas putida and Cell Hydrophobicity

Valerie Werder English, Visual Arts 2011 Mentor: Cyrus Mulready, English
"A Sight to Vex": Visual Poetry in Taymor's Titus

Jason N. Greenberg Electrical Engineering/Mathematics 2012
Mentor: Chirakkal V. Easwaran, Computer Science
Semantic Web for Distributed Multimedia Documents

Brianne Johnson International Relations, Business 2011
Mentor: Kate McCoy, Educational Studies
Academic Entitlement and Critical Thinking Skills

Dustin Peone Philosophy 2011 Mentor: Bruce Milem, Philosophy
Maimonides, Heidegger, and The Fallen Man

Corinna Ridgeway Psychology 2012 Mentor: Tabitha R. Holmes, Psychology
Learning to Disagree: Conflict in Emerging Adults

Josh Paugh Physics 2010 Mentor: Stacie Nunes, Physics
Structure and Properties Of Ru(II)Thiocyanate

Kyle Mcdonald Physics 2013 Mentor: Amy Forestell, Physics
The Characterization of Charge Coupled Devices

Claire Papell Women's Studies 2010 Mentor: Karl Bryant, Sociology
Advocacy Frames of Childhood Gender Nonconformity

Fall 2010 AYURE Award Recipients

Tasos Neofotistos Adolescence Education 2011 Mentor: Eve Tuck, Educational Studies
The Youth to Youth Guide to the GED

Miles Marnell Chemistry 2011 Mentors: Preeti Dhar, Aaron Haselton, Chemistry, Biology)
Bioassay development to see the effects of terminalia arjuna extracts on Drosophila melanogastor (fruit fly)

Jessica Mason Biology 2013 Mentor: Jason Valens, Biology
Microbial Ecology of Anoxic Zones in Coral Reef Live Rock

Abiola Gittens Biology 2010 Mentor: Jennifer Waldo, Biology
Characterization of the interaction between the Dad1 and Dad3 subunits of the yeast kinetochore Dam1 complex

Sanjana Reddy Biology 2011
Mentors: Maureen Morrow, Dan Freedman, Biology, Chemistry
Examination of apoptosis in Ru-arene complex treated cells

Janna Losow Spanish 2011 Mentor: Navin Viswanathan, Psychology
Studying cross-linguistic influences and short-term accent changes in bilingual instructors

Aaron Reed Biology 2010 Mentor: Jeff Reinking, Biology
Screening a Chemical Library for Nuclear Receptor Interactors

Spring 2011 AYURE Award Recipients

Gayle Riess Theatre, 2011 Mentor: Ken Goldstein, Theatre
Understanding and Applying Professional Production Management Styles and Practices

Shannon Honeywell Anthropology 2011 Mentor: Victor C. De Munck, Anthropology
The Fake Orgasm From A Cultural and Evolutionary Perspective

Aruba Iqbal Biology and Political Science 2011 Mentor: Jennifer T Waldo, Biology
Biochemical Characterization of The Candida Albicans Dam1 Kinetochore Complex

Colleen Heaney Theatre Arts 2012 Mentor: Andrea Varga, Theatre Arts
Contemporary Fashion and Illustration Techniques In Costume Design for Theatre

Shotaro Nakano Art/sculpture 2011 Mentor: Emily Puthoff, Fine Art
Data Visualization and Wireless Networking with Processing and the Arduino Microcontroller

Ester Sherman Biology 2011 Mentor: Thomas G Nolen, Biology
Characterization of the electrophysiological response of crustacean chemoreceptors to components of the defensive ink of Aplysia Californica

Haifa Mahabir Biology, Political Science 2011
Mentors: Jeff Miller, Political Science and International Relations
The Individual in Society: Islamic Practice and Communitarian Political Theory

Ross Dardani Political Science 2011
Mentor: Jeff Miller, Political Science and International Relations
A Justification for Positive Liberty

Mia Costa Political Science 2011
Mentor: Jeff Miller, Political Science and International Relations
Political Obligation, Horizontal Duty, and Disobedience

Hikari Kawamura Linguistics 2011 Mentor: Oksana Laleko, Linguistics
A Linguistic Study of Intergenerational Language Loss: Structural Properties of Heritage Japanese

Laurel Okorofsky Biology 2011 Mentor: Hon Ho, Biology
Mycoremediation of Contaminated Soil in the Mid-Hudson Region

Michelle Petrucci Art Education 2011
Mentor: Margaret Johnson, Art Education Program, Art Department
Interactive Technology Tools to Build 21st Century Skills in Art Education

Student Travel Award Recipients

Hikari Kawamura Linguistics 2011 Grammatical Restructuring in International Language Shift: A Case of Heritage Japanese at the 56th Annual Conference of the International Linguistics Association, New Brunswick, NJ.

Claire Papell Women's Studies 2011 Navigating the Tension between Childhood and Adulthood: New Discursive Constructions of Gender Variant and Transgender Children at the Pacific Sociological Association Annual Meeting in Seattle, WA.

Janna Losow Spanish 2011 Short Term Phonetic and Phonological Changes During Spanish Instruction at the 2nd PAN American/Iberian Meeting on Acoustics in Cancun, Mexico.

Valerie Werder English, Visual Arts 2011 "A Sight to Vex": The Visual Poetics of Julie Tyamor's Titus at the Undergraduate Conference in Medieval and Early Modern Studies in Bethlehem, PA.

Dustin Peone Philosophy 2011 The Fallen Man: Maimonides, Heidegger, and the Problem of the "I" at the Continental Drift: Philosophy and Religion Conference in Wilmington, NC.
* Best in Panel Award

Michelle Petrucci Art Education 2011 East Coast/West Coast Finale: Technology Tools To Build 21st -Century Skills at the National Art Education National Convention in Seattle, WA.

Michael Wengen Chemistry 2011 Characterizing surface properties of Bdellovibrio bacteriovorus with functionalized AFM probes at the 241st ACS National Meeting and Exposition in Anaheim, CA.

Steven Di Falco Biology 2011 Spatial and temporal variability of water quality in an anthropogenically affected river, Wallkill River and its tributary New Paltz, NY at the North American Benthological Society in Providence, RI.

Annette Storkman Theater Arts 2011 When to Wear Black at the SDHS Dance and Spectacle in Surrey, England.

Students accepted for the National Conference on Undergraduate Research in Ithaca, NY.
Darryl Steffen (Chemistry), **Jacob Kuruvilla** (Biology), **Eric Werner** (Biology), **Ghady Rahhal** (Chemistry), **Aruba Igbal** (Biology), **Sanjana Reddy** (Biology), **Adam Gordan** (Art History), **James Sutherland** (Chemistry), not in picture: **Stephanie George** (Psychology), **Josh Dorsi** (Psychology), **Corrina Ridgeway** (Psychology), **Matthew Hughes** (History),and **Saki Rizwana** (Black Studies)

Notes: