



***2013 SRS***

***19<sup>th</sup> ANNUAL***

***SUNY NEW PALTZ  
STUDENT RESEARCH  
SYMPOSIUM***

**ABSTRACT BOOK**



**New Paltz**  
STATE UNIVERSITY OF NEW YORK

*19<sup>th</sup> ANNUAL  
SUNY NEW PALTZ  
STUDENT RESEARCH SYMPOSIUM*

*Friday, May 3, 2013  
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 2013 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 2013 Student Research Symposium will include 64 poster presentations of work performed by 102 students representing 15 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** (Geological Sciences) for assistance with poster printing;

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**Jeff Baker** and the rest of the print shop for guidance with printing options;

**Ann Lovett** (Art) for poster design;

**Michelle Pielli** ( RSCA) for abstract book preparation and additional support.

## *The RSCA Advisory Board:*

Morgan Gwenwald (Library), Frantz Folmer-Andersen (Chemistry), Thomas Albrecht (Art ),  
Gregory Bynum (Educational Studies), Jed Mayer (English)  
Joel Neuman (Business), Kenneth Nystrom (Anthropology)

## **Minds @ Work**

**3-4:30pm** - Celebration of Writing, Library Lobby

**4-6:30pm** - Student Research Symposium, Library Main Reading Room

**4-6pm** - Art Foundations Show, Fine Art Building Rotunda and Smiley Arts Building

**4:15-6:15pm** - Student Documentaries, Library M42

**4:30-5:30pm** - Collaborative Student Directed Scenes, Library Lobby

**5:00-7:00 pm** - BFA shows, Dorsky Museum

## *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.



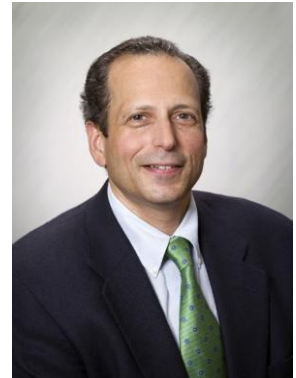
Research participation is certainly valuable (indeed, essential) for students considering graduate education and research careers. But these experiences are directly relevant in the education of all students, irrespective of future goals. Recent surveys sought employer opinions about the kinds of experiences 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***  
President

I am delighted that you are participating in the 19th annual Student Research Symposium at New Paltz. We take pride in the fact that our students consistently point to the transformative experiences they have here as key elements in their educational success. Foremost among these transformative experiences are undergraduate research, scholarship and creative activities. Over the last decade, a growing body of research has demonstrated that students engaged in undergraduate research make significant strides in cognitive, intellectual and professional growth over their peers who do not participate. Students involved in research and scholarly or creative activities have higher retention and graduation rates, enhanced communication and problem-solving skills, higher graduate-school acceptance rates, and greater success finding positions in their chosen fields. It's no wonder that participation in undergraduate research is considered a "high impact" educational practice!



What you gain most by engaging in undergraduate research, and what is at the heart of a college education, is learning how to learn— becoming someone who can grow intellectually, adapt to change, and engage in critical thinking and analysis. The knowledge and skills you acquire by participating in undergraduate research will help you become those lifelong learners.

The success of undergraduate research depends on close collaboration between our faculty and students. The faculty at New Paltz are true teacher-scholars; that is, they integrate their teaching and scholarship in ways that enhance the educational experience of students beyond the classroom. Our faculty work closely with students on projects and often collaborate with them on paper presentations or publications. I appreciate the commitment of time and effort by faculty who have mentored and advised our students and guided their research projects. I would especially like to recognize the many important contributions of the RSCA Advisory Board and Professor Maureen Morrow, campus-wide coordinator of undergraduate research, for making this symposium a success.

Finally, I want to congratulate students and faculty for your hard work and dedication, which have made today possible. I wish you continued success in your future academic endeavors.

***Philip Mauceri***

Provost & Vice President for Academic Affairs

On behalf of the Research, Scholarship, and Creative Activities Advisory Board, I would like to welcome you to the 2013 Student Research Symposium. This event is the 19th 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

## **COUNCIL ON UNDERGRADUATE RESEARCH INSTITUTIONAL MEMBERSHIP**

CUR provides support for undergraduate research in a variety of way. All faculty, staff, and students are eligible for free membership in CUR. Your membership sends a strong message to lawmakers and provides you with access to the CUR Quarterly Publication and monthly news letters.

Students should consider participating in CUR's 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

*Learning Through Research*

## *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 (see pages 47-50).

### **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 (AYURE) 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 CONFERENCE 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.

### **WE ARE ON FACEBOOK**

SUNY New Paltz Undergraduate Research, Scholarship and Creative Activities Group  
<https://www.facebook.com/group.php?gid=44644830786#!/pages/SUNY-New-Paltz-Research-Scholarship-and-Creative-Activities/43858825348>

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For more information, please visit our web page: [www.newpaltz.edu/studentresearch](http://www.newpaltz.edu/studentresearch).

You may also contact: Maureen Morrow, Director, Undergraduate RSCA [morrowm@newpaltz.edu](mailto:morrowm@newpaltz.edu) (845-257-3776).

## *Poster Sessions at-a-glance*

### **Poster Session I 4:15-5:00p**

***Visual Geology: Creating Paint out of Raw Materials***

Laura Lanchantin (Art, Painting)

***Visualizing the Human Form: DICOM Technologies and the Arts***

Bri Murphy (Art/Ceramics)

***Semantics vs. phonetics in Mandarin Chinese loan words***

Lani Nelson (Asian Studies/Linguistics)

***Purification and crystallization of the kinetochore assembly protein “dad2p” in Candida albicans***

Matthew Lipinski (Biology)

***Olfactory Response to Alpha-pinene Derivatives in the House Fly***

Jaydon Kiernan (Biology)

***Stand Location Affect on Species Diversity and Richness***

Anna Jakubek (Biology) Wes Hoen (Sociology/Biology) Justine Dill (Biology)

***Archaeal Presence in Indonesian Marine Coral Environments***

Joseph Kruk (Biology)

***Expression and Purification of S. cerevisiae dad4 in E. coli***

Marianne Kramer (Biology)

***Comparing Identification Techniques of Marine Microbial Niches.***

Jessica Mason (Biology)

***POGIL activities for General Chemistry at SUNY New Paltz.***

Kristine Hanley (Chemistry)

***Aggregates of Oligonucleotides and a Surfactant***

Adam Rimawi (Chemistry) Kathleen Westervelt (Chemistry)

***Molecular Constants of Linear Molecules***

Mauricio Kleinberg (Chemistry)

***Domestic Violence within the Triangle Countries of Honduras, El Salvador and Guatemala***

Veraluz De Leon (Latin American & Caribbean Studies)



***Two-Way Immersion vs. Structured English Immersion***

Remy Le Dily (Linguistics)

***The Stigmatizing Nature of Disaster***

Erin Kellar (Psychology)

***Women on Hormonal Contraceptives: A Different World?***

Rebecca Newmark (Psychology) Melvin Philip (Psychology)

***Students from Underrepresented Backgrounds: Mental Health, Bicultural Self-Efficacy and Belonging***

Alexandria Jardine (Psychology)

***Career Choice Anxiety among Graduating College Students***

Kimberly Lepore (Psychology) Vincenzina Duno (Psychology) Anna Okurowski

***Are You Smarter than a Personal Ad?: An Ability-Based Measure of Mating Intelligence***

Raina Hafftka (Psychology) Christopher Farrington (SUNY New Paltz) Rebecca Newmark (Psychology) Briana Tauber (Psychology) Daryn Bleach (Anthropology/Art/Creative Writing) Jamille Borer (Psychology)

***Neural Correlates of Processing in Second Language Learning***

Nathan Earl (Psychology) Michael Acerra (Psychobiology) Elizabeth Sacchi (Psychobiology) Emily Heimbender (Psychobiology)

***The Impact of an Experiential Program on Homophobic Attitudes***

Jennifer Maurer (Student Development)

**Poster Session II 5:00-5:45 pm**

***Vikings: the Embodiment of a Warrior Culture***

Dylan Lewis (Anthropology)

***Margaret Mead and the Controversy of Culture versus Biology***

Juliana Hedeman (Anthropology) Barbara Cady (Woman's Studies)

***Unseen photographs from the collection of Margaret Mead and Gregory Bateson***

Juliana Hedeman (Anthropology) Barbara Cady (Women's Studies)

***Osteobiography of the Hurley Mountain Man***

Alexandra Mackey (Anthropology) Alexis Moody (Anthropology)

***Carbohydrate Expulsion As Observed in the Crop of *Musca Domestica****

Michael Khoury (Biology)

***Diagnostic test to determine presence of mutated FGF genes in Rhodesian Ridgebacks using qPCR***

Emily Rouse (Biology)

***Insecticidal Properties of Azetidinones***

Emily Coluccio (Biology) Hash Al-Mashat (Chemistry)

***Differences in tree species within a mixed hardwood forest***

John Young (Biology) Anna Jakubek (Biology) Wes Hoen (Sociology/Biology)

Justine Dill (Biology)

***Identification of Fungal Species in Local Deadwood***

Alexander Frank (Biology)

***Heavy Metal Stress Effects on Pisums sativum***

Richard Jean-Louis (Biology/Chemistry and Black Studies)

***Quantifying Cell Production of Ubiquinone-8 by Host-Independent B.Bacteriovorus***

Ryan Taylor (Chemistry)

***Formation Constants of Acylhydrazones and Imines in Water***

Erik Van Vlack (Chemistry) Leander Bromley (Chemistry)

***Influences of Renewable Energy Use***

Jose M. Rodriguez del Pozo (Economics)

***Can Economic Growth Lead to Less Environmental Degradation?***

Nicholas Hranitz (Economics)

***Monetary Policy and the Stock Market***

Christopher Coleman (Economics)

***Mapping a Medieval Career: Jean Gerson's Joan of Arc Decision***

Miriam Ward (History & Digital Media Production)

***New Strategies in Bilingual Education***

Rebecca Joslin (Languages, Literature and Cultures/Spanish, Secondary Education)

***Evaluating Noise-Vocoded Speech and the Irrelevant Sound Effect***

Josh Dorsi (Psychology) Daniel Cassidy (Psychology) Brian George (Psychology)

***Sensitivity to VOT-vowel length covariation***

Sarath Manuel (Psychology) Julianne Reilly (Psychology) Angelo D'Addario (Psychology) Susan Mason (Communication Disorders)

***Examining the Distinctions Among Anticipatory Emotions***

Tina Guerin (Psychology) Gabriela Guzzo (Psychology) Rami Ismail (Psychology) Lori Lynch (Psychology) Emma Scott (Psychology)

***Depictions of Class in 21st Century America through Reality Television***

Frank Greenaway (Sociology)

***An Alternative Perspective of Student Involvement; through a Visual Lens***

Marissa Stephani (Student Development)

**Poster Session III 5:45-6:30p**

***CQ CQ...Who's Your Elmer? \*\*\* This presentation is a documentary, library room M42***

Dylan Lewis (Anthropology)

***Reducing Observer-Measurement Error Using 3D Laser Scanner***

Dillon Ludemann (Anthropology)

***Examination of Ru-Based Compound Cytotoxicity***

Francy Hernandez (Biochemistry) Maria Ortiz (Biology) Marae Thompson (Biology)

***Increased pH in Formerly Acidic Lake Minnewaska***

David Charifson (Biology)

***Mesotrophic Conditions in Lake Minnewaska, Ulster***

Erich Stern (Biology) David Charifson (Biology)

***Quantifying and Modeling Regeneration with Logistic Growth***

Michael Minicozzi (Biology) Hannah Miller (Biology) Lucia Milla (Biology)

***Identification of hLXR ligands using Differential Scanning Fluorimetry (DSF)***

Cody Saraceno (Biology)

***The Isolation and Identification of Isaria species***

Minna George (Biology) Megan Grant (New Paltz High School)

***Comparison of BPS and BPA on Regeneration in Planaria***

Lucia Milla (Biology) Madeline Schroeder (Biology)

***Presence of Estrogen Ligand Binding Domains in Planaria***

Nichole Gaucher (Biology) Hannah Miller (Biology)

***Zero-Linked Polymeric Hemoglobin (OxyVita®Hb)***

Sarah Anvery (Chemistry)

***Efforts Toward Syntheses of Isomeric Macrocycles***

Jiries Meehan-Atrash (Chemistry) Hannah Powers (Chemistry)

***Categorical Perception in Indian-English Multilinguals***

Susan Mason (Communication Disorders) Keith Angrisani (Psychobiology)

***U.S. Cotton Subsidies & Major Exporters in the Developing World***

Sergio Romero Lopez (Economics)

***Micro-finance and Millennium Development Goal No. 2***

Tania La Menza (Economics)

***Freedom and Economic Growth in Latin America***

Patricia Moreno (Economics)

***Can Foreign Aid boost a Country's Economic growth?***

Ying Tien Lee (Economics)

***Spanish-English Code-Switching in the United States***

Samantha Abravanel (Languages, Literatures and Cultures)

***Interest: Is it Helpful or Hurtful for Learning?***

Craig Smith (Psychology)

***Can Individuals Distinguish Dread from Anxiety?***

Tina Guerin (Psychology) Gabriela Guzzo (Psychology) Rami Ismail (Psychology) Lori Lynch (Psychology) Emma Scott (Psychology)

***Theses and Dissertations: The Role of Anticipatory Emotions***

Tina Guerin (Psychology) Gabriela Guzzo (Psychology) Rami Ismail (Psychology) Lori Lynch (Psychology) Emma Scott (Psychology)

## *Abstracts*

### ***CQ CQ...Who's Your Elmer?***

**Dylan Lewis** (Anthropology)

Faculty Mentor: Lauren Meeker (Anthropology)

What is an amateur radio operator? What role does the amateur radio operator play in the community? Why, in the age of cell phones, the internet, and instant communication is the amateur radio community growing stronger? This film explores a range of activities of the amateur radio operator, from day-to-day communication to vital participation in emergency communications. Some operators interested in radio theory are always fixing, modifying and building their own radios and antennas. Others want to play a role in maintaining communication during an emergency. If the power were to go out, cell phones, computers and the internet would all be compromised. The only people with the ability to communicate would be ham radio operators. As many serious and technical aspects there are to the hobby, there are also people who just want to talk to people from all over the world. While all of these people utilize the radio in different ways, together they form their own community. Through an ethnographic approach to filmmaking, we explore the language and culture of the ham radio community. Video ethnographies capture people in their environment and invite collaboration from film subjects. This medium has captured the unfiltered experiences of the ham radio operators. We are able to show both the diversity and unity of this community of individuals.

### ***Vikings: the Embodiment of a Warrior Culture***

**Dylan Lewis** (Anthropology)

Faculty Mentor: Benjamin Junge (Anthropology)

This poster presents research on the embodiment of Viking culture in material remains. The Vikings are viewed in many different lights. They are seen as fierce warriors, barbarians, traders, and conquerors. Historically, they were feared by Europe but contributed greatly to its formation. What about their home life? How did the individual Viking define their identity? How was their, religion, subsistence, and social stratification preserved in the archaeological record? How are aspects of their culture reflected in the material remains? To develop answers to these questions, I have consulted archaeological, osteological, and historical evidence. The role of the Vikings in Dark Age Europe is more than what historical accounts have provided. They expanded out of Scandinavia and settled already occupied land. Sometimes they even conquered kingdoms. Their material remains tell the story of why they were urged to leave. The popular misunderstanding is that they were an unstoppable force. In reality they were fought in every land they settled. Culturally, they were a warrior people. That basis was coupled with the fall of Rome, social and geographical constriction, loss of valuable trade routes and an economic inability to support large groups of people. Ultimately, the Vikings were a much more humble people with unique identities.

## ***Margaret Mead and the Controversy of Culture versus Biology***

**Juliana Hedeman** (Anthropology) **Barbara Cady** (Woman's Studies)  
Faculty Mentor: Benjamin Junge (Anthropology)

This research examines a major controversy surrounding the work of American anthropologist Margaret Mead. Mead was a revered cultural anthropologist, writer, teacher, mother, and outspoken social critic with a career that spanned over 50 years. Her work on gender and sexuality in so-called primitive societies, especially her groundbreaking 1923 ethnographic study of adolescent girls in Samoa, provided a mirror to reflect back on the tumultuous years of adolescence for American youth. Five years after her death, however, Mead's reputation was called into question by anthropologist Derek Freeman, whose 1983 book, *Margaret Mead: The Making and Unmaking of an American Icon*, accused Mead of being wrong in her conclusions of Samoan society. Drawing from a detailed review of historical and biographical scholarship, an analysis of Mead's early-career use of photography in fieldwork, as well as various interviews with curators and authors at the American Museum of Natural History in New York City, where Mead worked for nearly 50 years, this poster will present an analysis of the paradox of her public acclaim and the controversy that surrounded her work as a social scientist. In explaining attacks on Mead, I argue the importance of factors such as racism, sexism and classism.

## ***Unseen photographs from the collection of Margaret Mead and Gregory Bateson***

**Juliana Hedeman** (Anthropology) **Barbara Cady** (Woman's Studies)  
Faculty Mentor: Benjamin Junge (Anthropology)

Throughout their careers, anthropologists Margaret Mead and Gregory Bateson made extensive use of the camera in capturing and representing the lives and cultures of the peoples they studied. Unsurprisingly, given the large number of photographs taken, many have gone unseen by the public eye. Recently, SUNY New Paltz acquired a collection of 33 of these previously unseen photographs gifted to a former student's relative by Mead. In this presentation, we report on extensive background research conducted to identify the context and understand the significance of these photographs in Mead and Bateson's methodology. Through meetings at the American Museum of Natural History (Mead's former place of employment), correspondence with Prof. Mary Catherine Bateson (Mead and Bateson's daughter), and extensive research into their lives, published photo collections, and field experiences, we have come up with informed hypotheses as to the context, content, timeframe, and subjects of each photo. Though there are some anomalies, these photos are likely to be taken during Bateson's time among the Baining people of New Guinea. Not only do the photographs and accompanying research take a look into the work of important figures in American Anthropology, but they also offer a fascinating glimpse into how the camera is more generally utilized as a methodology in Anthropology. More specifically, this research gives insight into Mead and Bateson's use of photography and film, which is thought to be integral to their works.

## ***Osteobiography of the Hurley Mountain Man***

**Alexandra Mackey** (Anthropology) **Alexis Moody** (Anthropology)

Faculty Mentor: Kenneth Nystrom (Anthropology)

At the end of 2012, the New Paltz Anthropology Department received the skeletal remains of a single individual, likely dating to the late 18th century from the town of Hurley, NY. With the aid of the State Archaeologist, we are using historical and osteological data in an attempt to identify the most appropriate descent community of the individual for the purpose of returning and reintering the remains. The initial osteometric and osteomorphic data indicated that the individual was an African-American male approximately 35 to 50 years of age at time of death. The dental evidence suggests the individual habitually used pipes and the sites of muscle attachment indicate a very high level of physical activity. We are researching the relationships between these muscle attachments and specific activity patterns. In addition, we are examining various historical documents and town records in order to gain insight into the life of this individual as well as into the history of slavery and African-Americans in the mid-Hudson valley during the late 1700s.

## ***Reducing Observer-Measurement Error Using 3D Laser Scanner***

**Dillon Ludemann** (Anthropology)

Faculty Mentor: Ken Nystrom (Anthropology)

In bilaterally symmetrical organisms, the assumption is that antimeric structures are mirror images of one another. Deviations from symmetry can therefore be used as a non-specific indicator of physiological stress (e.g., nutritional deficiencies). Previous research have relied upon hand-held calipers to measure antimeric structures in order to calculate the degree of bilateral asymmetry, but this method has several limitations, most of which rest on the experience of the professional making the measurements. In this study, we will attempt to reduce observer error by using a NextEngine 3D laser scanner.

The right and left first mandibular molars were measured from ten individuals from the Newburgh Colored Burial Ground skeletal collection, using both physical calipers and the NextEngine 3D scanner. These results will then be compared to each other. Teeth are antimeric structures and because they stop growing by 12 years old, asymmetry can reflect physiological stress experienced during childhood. With the use of the laser scanner, we hope to provide a more unbiased approach to measuring dental asymmetry.

## ***Visual Geology: Creating Paint out of Raw Materials***

**Laura Lanchantin** (Art, Painting)

Faculty Mentor: Neuhaus Itty (Coordinator of Art Foundation)

My goal in this research project is to learn how to make my own paint out of unique raw materials that I plan to gather, such as clay and rocks. This is a process most artists do not practice anymore, because commercial painting products are so readily available. This semester I have experimented and researched the art of paint making by traveling and finding unique stones and applying them with different mediums to create colors you are unable to find in any art supply store. The organic colors have shown to be truly unique and perfectly fit my subject matter of Landscape and nature studies. I have a strong emotional connection to Nature and the places that I go and collect these raw materials, and creating pigments out of the physicality of the land makes for personally resonant colors that I could fully communicate my ideas with.

## ***Visualizing the Human Form: DICOM Technologies and the Arts***

**Bri Murphy** (Art/Ceramics)

Faculty Mentor: Bryan Czibesz (Art Department)

Traditionally, DICOM (Digital Imaging and Communications in Medicine) software was used exclusively in the medical field. This type of program provides the groundwork upon which the storing, transmitting, and editing of medical images is built. More recently, developments of this type of software have given those working in the field of medicine the ability to generate 3-dimensional models based on volumetric data sets (MRI, CT, etc.). In 2004, a project was launched that ultimately resulted in the release of the open source OsiriX Imaging Software. This program, available for download online, now gives anyone the ability to exploit the functions of DICOM software. The specific function of OsiriX that is of particular interest to the artist is the interpolation of data points throughout a set of medical images in order to render a 3D model called a mesh. Additionally, OsiriX can be used to export meshes into various file types compatible with a variety of mesh-editing softwares. In these programs, the models can be cleaned, edited, and manipulated to meet the needs of the artist. Using prototyping and 3D printing technologies, these models can be brought from virtual space into reality, thus giving the artist a working prototype that can then be casted and replicated. This research bridges the disciplines of science, technology, and art, while presenting new methods for artists interested in generating 3D models from the human body.



## ***Semantics vs. phonetics in Mandarin Chinese loan words***

**Lani Nelson** (Asian Studies/Linguistics)

Faculty Mentor: Oksana Laleko (Linguistics)

In cases of intensive, sustained language contact, lexical borrowing almost inevitably occurs between the prestigious language, or the language belonging to the dominant culture, and the language belonging to the less dominant culture. While words are typically imported with the purpose of filling lexical gaps to describe new technologies and concepts, some languages, like Japanese, have taken to using English loanwords to the extent that they are even replacing native Japanese equivalents in casual conversation. Although much research has been done to observe this particular phenomenon, little research has been done to understand lexical borrowing in China, which also has had extensive contact with the English language and sustains a large bilingual population of English and Mandarin Chinese speakers. Due to its character-based writing system, input words from foreign languages have to be adapted both phonetically and semantically to create a suitable output word. The most preferred loan words tend to be those that most resemble native Chinese words, and as a result even loan words that initially take the form of phonetically adapted outputs are usually replaced in time by a semantically adapted, more Chinese sounding equivalent output word. To test the theory that Chinese speakers show a preference for semantic adaptations in spite of the prestige that English carries, roughly 30 Chinese people were given a 4-part online survey created to ascertain (1) their level of exposure

## ***Examination Of Ru-Based Compound Cytotoxicity***

**Francy Hernandez** (Biochemistry) **Maria Ortiz** (Biology)

**Marae Thompson** (Biology)

Faculty Mentors: Maureen Morrow (Biology) Daniel Freedman (Chemistry)

Cancer treatment with cisplatin (Cis-Pt), kills cells by irreversibly binding to DNA and inducing apoptosis. However, severe side effects and drug resistance occur. Ruthenium (Ru) based compounds are being tested as a potential replacement for Cis-Pt as they may have fewer negative effects; however the cytotoxic mechanism is unknown. The purpose of these experiments is to determine if various [(paracymene) Ru (beta-ketoiminate) Cl] complexes work through the same or different mechanism as Cis-Pt. To address this question, the lung cancer cell line A549 was treated with combinations of Cis-Pt and our Ru complexes (Compound #1 (o-OHphenyl), and Compound #8 (o-carboxylatephenylNO)). Based on the concept of drug synergy, when two compounds are combined three outcomes are possible: subadditive effect (compounds inhibit each other, inconclusive mechanism), additive effect (compounds work through the same mechanism), and synergistic effect (compounds work through different mechanisms). A second aspect of this experiment is to determine the effect of Ru complexes on cisplatin resistant A549 cells (CPRs). If Cis-Pt and the Ru compounds work through the same mechanism, the CPRs should also be resistant to the Ru compounds. The drug synergy studies have demonstrated that cis-Pt and the Ru compounds have an additive effect, suggesting that they have the same cytotoxic mechanism. The results of CPR studies and additional drug combination studies will also be presented.

## ***Carbohydrate Expulsion As Observed in the Crop of Musca Domestica***

**Michael Khoury** (Biology)

Faculty Mentor: Aaron Haselton (Biology)

The insect crop is a specialized region of the digestive tract dedicated to the storage of excess ingested food. In the house fly, *Musca Domestica*, the crop serves as a reservoir for nectar meals and may play a critical role in carbohydrate homeostasis by regulating blood-sugar levels between meals. Presently, very little is known about the time span of carbohydrate expulsion from the crop in the house fly. We explored the length of time taken to clear 3 microliters of ingested sucrose solution from the crop. Our data revealed that the crop is completely emptied of carbohydrate fluid by 24 hours post ingestion, and that crop emptying and the resulting availability of blood sugars may determine fasting survival time.

## ***Increased pH in Formerly Acidic Lake Minnewaska***

**David Charifson** (Biology)

Faculty Mentor: David Richardson (Biology)

Lake Minnewaska is a soft water lake that is mostly fed by precipitation due to its small and thin-soiled watershed. Acid rain resulted in a pH of about 4-4.5 in the lake for most of the 20th century. However, over the past 40 years, the pH of Lake Minnewaska has risen to a more neutral 6.5. Lake Awosting, located 3 miles from Minnewaska, shares similarities in geology and water chemistry, yet only showed small increases in pH over the same time period. Multiple factors likely caused the decreased acidity in Minnewaska including both decreased acidity of rain in recent decades and changes in the lake's watershed. For recreational purposes Minnewaska State Park maintains rock lined carriageways around the perimeter of the lake. Calcium carbonate in the trail rock may be buffering the pH of the lake. In order to investigate the impacts of the four different materials used within the watershed, trail rock was added to water from Lake Awosting and monitored for pH and conductivity changes. Additionally, comparisons between Lakes Minnewaska and Awosting in terms of pH and ion concentrations past and present were analyzed. Purchased trail rock from another site, which contains limestone, has the greatest impact on pH and conductivity. Minnewaska experienced greater changes in pH and water chemistry compared to Awosting, suggesting that factors other than increased pH of precipitation are operating in Lake Minnewaska and its watershed.

## ***Mesotrophic Conditions in Lake Minnewaska, Ulster***

**Erich Stern** (Biology) **David Charifson** (Biology)

Faculty Mentor: David Richardson (Biology)

Lake Minnewaska was known as an acidic, fishless, and crystal clear oligotrophic lake on the Shawangunk Ridge, but, in recent years, the lake ecosystem has been rapidly changing. The pH has risen over the past two decades from acidic to close to neutral. The now neutral waters have allowed a minnow, the Golden shiner (*Notemigonus crysoleucas*), to successfully invade the lake. We expect ecosystem wide effects due to the fish introduction; foremost among these is eutrophication by trophic cascade. We hypothesize that the zooplankton populations have been suppressed by minnows who act as new predators; this feeding releases the phytoplankton population due to decreased grazing. Increased phytoplankton blooms and reduced water clarity pose danger to the rare aquatic life currently in the lake including the deep water bryophyte *Sphagnum trinitense* and a behaviorally unique population of two-lined salamander. Throughout 2012, we measured pH, chlorophyll a, total phosphorus (TP), secchi depth, conductivity, and dissolved oxygen at both the lake surface and in profile to indicate major ecosystem changes in Lake Minnewaska. We also monitored nearby Lake Awosting which remains fishless and similar to the condition of Lake Minnewaska prior to the pH increase and fish introduction. Chlorophyll a, TP, secchi depth, and anoxia throughout the summer and fall months indicate that the primary productivity of the lake has risen to mesotrophic levels.

## ***Quantifying and Modeling Regeneration with Logistic Growth***

**Michael Minicozzi** (Biology) **Hannah Miller** (Biology) **Lucia Milla** (Biology)

Faculty Mentor: Spencer Mass (Biology)

Morphometric analysis of planarian regeneration has struggled with quantification since biologists first began to explore this system rigorously. Traditional methods for analyzing planarian regeneration have relied on arbitrary end-points such as the appearance of eye-spots to plot growth over time. Some contemporary workers have employed cellular and molecular methods for determining allometry and isometry during growth and degrowth, but to date there has been no entirely satisfactory method for doing high-throughput quantitative morphometry. In this work we demonstrate that planarian regeneration can be quantitatively analyzed using morphometric image analysis and that early planarian regeneration can be modeled using logistic growth. We developed software to automate this process and demonstrate that our software can accurately and precisely measure growth in a variety of conditions, including states of perturbed physiology. In addition, we show that the logistic growth parameters for regenerating planaria are the same across several different species. This strongly suggests that the mechanisms controlling blastema formation and growth are conserved across species and also validates the use of logistic growth for analyzing these processes.

## ***Purification and crystallization of the kinetochore assembly protein “dad2p” in Candida albicans***

**Matthew Lipinski** (Biology)

Faculty Mentor: Jennifer Waldo (Biology)

Our lab is currently in the process of characterizing, through various biochemical analyses, the structure and interplay of the constituents of the Dam1 complex. The Dam1 complex is a heterodecameric kinetochore assembly; during mitosis, it is responsible for initiating and maintaining contact between the mitotic spindle and the kinetochore. To date, the properties of most of the individual subunits have been elusive due to the intrinsically disordered nature of many of the proteins. We are currently working on crystallizing one of these subunits from *Candida albicans*, dad2p, in hopes of eventually elucidating its three-dimensional structure. We have been purifying the protein using affinity chromatography and ion exchange columns on cell lysates, and running it through various crystal screening agents to find a suitable set of conditions for protein precipitation. With knowledge of our protein's three-dimensional structure, we hope to characterize its role in the Dam1 complex and potentially contribute to drug development against this yeast mitotic protein in the future.

## ***Olfactory Response to Alpha-pinene Derivatives in the House Fly***

**Jaydon Kiernan** (Biology)

Faculty Mentor: Aaron Haselton (Biology)

The house fly *Musca domestica* exhibits behavioral aversion toward alpha-pinene odors. An investigation of the fly's neurophysiological response to derivatives of this plant secondary metabolite was performed to better understand the repellent characteristics of  $\alpha$ -pinene in order to aid in the potential discovery of an optimal repellent. An electroantennogram (EAG) assay was used to record the olfactory response of the antenna to various  $\alpha$ -pinene-derived compounds. The EAG measurement was carried out within an hour of immobilizing the living fly in a full-body wax casing. An air-stream containing one of the volatile compounds was directed over the antennae of the fly. The EAG profile of the house fly reveals a characteristic response for each derivative tested. EAG parameters including the difference in maximum amplitudes, polarity, length of response, and decay of response were described, analyzed, and ultimately revealed an intriguing possibility for the discovery of an optimized repellent.

## ***Stand Location Affect on Species Diversity and Richness***

**Anna Jakubek** (Biology) **Wes Hoen** (Sociology/Biology) **Justine Dill** (Biology)  
Faculty Mentor: Eric Keeling (Biology)

The environment where a tree will grow must have suitable resources such as sunlight, moisture, specific nutrients in the soil; and each environment will have its own ratio of these factors due to this, specific location can give rise to the species of trees that will grow in that area. Although a forest is viewed as a whole ecosystem it can be split into different sub systems. In the case of this experiment it was split into edge and interior stands. As society continues to cut down forest areas for the purpose of expanding residential areas or production of consumer products, we may face a loss of specific tree species due to the increase in edge stands and a decrease of the interior stands. Two plots were set up in the interior and exterior of the forest (each 400 square meters) in our campus forest located behind the Esopus dormitory during the Fall Semester 2012 at SUNY New Paltz. The edge stand, having a higher ratio of viable resources for plant growth was home to a greater diversity of tree species, while the interior stand was home to a higher density of specific tree species, due to the scarcity of resources, fewer trees were able to thrive. Consequentially those trees that did strive in the interior made it more difficult for trees less suited for the interior stand to survive resulting in the higher density but lower richness. As society continues to cut down the forest systems, we will see a shift toward greater forest edges, and we must develop a better understanding of how the ecology will adapt to the new environments.

## ***Archaeal Presence in Indonesian Marine Coral Environments***

**Joseph Kruk** (Biology)  
Faculty Mentor: Jason Valens (Biology)

Our lab has previously been interested in investigating the presence and fundamental role of bacteria found in the biofilms of live rock marine ecosystems. This research includes sequencing bacterial samples taken from both the interior and surface of live rock samples. Presently, there seems to be a dearth of research involving archaea in any but the most hostile and extreme of environments. However, we now wish to expand upon our prior work by including archaea in our research, giving a broader range of archaea investigation in more mild environmental conditions. Methods include: taking biofilm scrapings off of live rock collected from coral reefs in Indonesia, purifying and amplifying archaeal 16S ribosomal genes through degenerate PCR, cloning of the gene fragments, restriction enzyme digestion and subsequent gel screening for positive clones, genomic sequencing, and BLAST analysis. We currently have 85 positive clones awaiting sequencing and further BLAST analysis and we another 16 clones to screen in the near future as well.

## ***Identification of hLXR ligands using Differential Scanning Fluorimetry (DSF)***

**Cody Saraceno** (Biology)

Faculty Mentor: Jeffrey Reinking (Biology)

Nuclear receptors are cytoplasmic proteins that are used primarily to regulate gene expression. As such, this is a property that is used to inform new drug development by developing and discovering compounds that can interact with endogenous human nuclear receptors as a means of disease treatment. A seemingly unrelated class of compounds, known as the “big potassium” (BK) channel blockers, have been shown to be able to interact with certain human nuclear receptors, such as the human Liver X Receptor (hLXR) as well. Preliminary evidence based on previous experiments suggests that Paxilline, a known BK channel interactor, also has the ability to interact with human nuclear receptors, specifically human Estrogen Receptor alpha (hERalpha). Here we investigate the ability to use a technique known as differential scanning fluorimetry (DSF) to identify known ligands of the estrogen receptor (such as tamoxifen, estradiol and fulvestrant) as well as paxilline. We also investigate the the ligand binding activity of hLXRs to interact with the same compounds.

## ***Diagnostic test to determine presence of mutated FGF genes in Rhodesian Ridgebacks using qPCR***

**Emily Rouse** (Biology)

Faculty Mentor: Jennifer Waldo (Biology)

The Rhodesian Ridgeback dog possesses a characteristic ridge on it's back. This has been shown to be due to a dominant trait which is caused by a 133-kb duplication which includes three fibroblast growth factor genes which are vital to development. Dogs possessing two copies of this duplication may develop abnormalities such as openings in the spinal cord containing hair follicles called a dermoid sinus, which could lead to infection.

We want to develop a diagnostic DNA test to determine if said individuals posses one or two copies of the ridge allele. By using real-time quantitative PCR (qPCR), we can distinguish the relative amount of DNA in a sample and therefore determining the presence of one or two alleles. The results of our analysis on dogs of known genotype confirm that our test is capable of detecting this difference. Developing this test will allow breeders to regulate ratios of ridged to ridgeless puppies, and hopefully prevent the production of puppies with spinal deformities.

## ***Insecticidal Properties of Azetidinones***

**Emily Coluccio** (Biology) **Hash Al-Mashat** (Chemistry)

Faculty Mentors: Preeti Dhar (Chemistry) Aaron Haselton (Biology)

Nicotine, the active component of tobacco, has been found to have insecticidal properties and acts as an agonist at the nicotinic acetylcholine receptor (nAChR) found in both mammals and insects. Hence, nicotine is also toxic to mammals. It is desirable to find insecticides that only act on acetylcholine receptors of insects and not mammals.

The important structural features of nicotine include the 6-membered pyridine ring and the 5-membered pyrrolidine ring. We have replaced the pyridine with a benzene ring and the pyrrolidine ring with the four membered azetidinone ring and its corresponding N-sulfonyl chloride (in most of our compounds).

Bioassays using adult house flies (*Musca domestica*) were performed wherein the flies were exposed to the compounds in a small fumigation chamber. Our controls and compounds were soluble in 40% DMSO/acetone, and therefore this was used as a negative control (positive control being 200  $\mu\text{g}$  of Nicotine). Compounds were tested at 200 and 400 $\mu\text{g}$ 's. So far, none of the compounds tested have shown any insecticidal activity.

## ***Differences in tree species composition and abundance between the edge and interior of a mixed hardwood forest near SUNY New Paltz, NY***

**John Young** (Biology) **Anna Jakubek** (Biology) **Wes Hoen** (Sociology/Biology)

**Justine Dill** (Biology)

Faculty Mentor: Eric Keeling (SUNY New Paltz, NY)

Environmental conditions differ between the edge and interior of a forest. As society continues to clear and fragment forested areas for the purpose of expanding residential areas or for the production of wood products, tree species composition may change due to the increase in forest edges and decrease in forest interiors. In this study, we sought to determine whether tree species composition and abundance were different at the edge versus the interior of a parcel of forest located behind the Esopus dormitory and adjacent to the soccer field at SUNY New Paltz. In each area (edge vs. interior) we identified and counted tree species and measured tree diameters within 3 20x20 meter plots. The edge had higher overall tree density, slightly higher basal area, and a greater number of tree species than the interior. The higher number of species in the edge included many species not found in the interior. Our results suggest that forest fragmentation and edge effects may alter the composition of tree species in local forests.

## ***Identification of Fungal Species in Local Deadwood***

**Alexander Frank** (Biology)

Faculty Mentors: Maureen Morrow (Biology) Eric Keeling (Biology)

Hon Ho (Biology)

One mechanism for understanding the relationship of multicellular organisms to microbes is the identification of species of fungi from micro communities (such as inside a tree). We sampled wood taken locally from a pitch pine trunk identified as having an unusual pattern of dark wood (DW) that may be indicative of a fungal infection. The goal of this work is to identify a fungus that may be responsible for the observed DW pattern. We initially used molecular analysis (PCR amplification using fungal specific primers), but were unsuccessful at amplifying fungal DNA. We also grew cultures of samples taken from different places in the cross section of the tree. We compared samples from the presumably infected DW areas, uninfected areas, and the border between the two areas. At this point, morphological analysis of the cultures indicates that we have yet to identify a particular species of fungi associated with the dark wood pattern. We are using additional culture techniques for the continued analysis of the samples. From the species we have grown, none are typically associated with the heart rot we suspect is responsible for the DW seen in our wood sample suggesting the samples we grew were secondary invaders. When we do culture an infected fungus, we will do DNA analysis and morphological analysis to identify the fungus. This work will aid in our understanding of the health of local pitch pine trees.

## ***Expression and Purification of *S. cerevisiae* dad4 in *E. coli****

**Marianne Kramer** (Biology)

Faculty Mentor: Jennifer Waldo (Biology)

The *Saccharomyces cerevisiae* DASH complex is located at the kinetochore of chromosomes. This complex allows for attachment of the chromosomes to the spindle and proper segregation of sister chromatids during mitosis. This protein complex contains 10 protein subunits that form a ring around the microtubules, including a protein called dad4. Determining the structure of the individual subunits and how they interact with each other is essential to understanding the interaction between microtubules and chromosomes. It is important to understand this mechanism in a simple organism, such as a yeast cell, to eventually understand how this association is made in more advanced species. We initially constructed a plasmid containing the dad4 gene and replicated the gene via transformation into *Escherichia coli*. With sufficient amount of gene copies we were then able to excise our dad4 gene from the plasmid, isolate the fragment and insert it into an expression plasmid, adjacent to a histidine tag, to induce the expression of the dad4 gene and thus produce the dad4 protein. We induced production of the protein using a modified version of the lac operon, which is activated by the presence of lactose, which was added to the cell growth media. We are attempting to successfully isolate and purify dad4 from the other bacterial proteins using size exclusion chromatography and examine its interaction with another protein in this complex called dad2.



# ***Comparing Identification Techniques of Marine Microbial Niches.***

**Jessica Mason** (Biology)

Faculty Mentor: Jason Valens (Biology)

Bacterial biofilms of marine environments have not been studied extensively. The microorganisms provide vital metabolic processes to break down chemical byproducts and consume dissolved organic matter. The research implement is designed to identify the types of bacteria inhabiting Indonesian live rock. Previous results compared the exterior populations to the interior pours populations yielding more diversity on the inside of live rock, but more species that were unknown. On average it is observed that approximately five 'key player' species form the main biofilm and support the environment for drifters. During recent experiments, culturing bacteria from surface scrapings as well as filtering the water column for bacteria has become a project to see what species will be found using these techniques compared to a metagenomic sample. It was hypothesized that there would be less diversity in the culturing procedure, knowing that marine bacteria are difficult to grow in the lab. *Vibrio* was the species that thrived in the culturing parameters performed. In further research, more libraries will be made to get a better understanding of the diversity and community structure of microbes in marine habitats.

# ***The Isolation and Identification of Isaria DNA***

**Minna George** (Biology) **Megan Grant** (New Paltz High School)

Faculty Mentor: Maureen Morrow (Biology)

Certain species of fungi are able to produce antimicrobial substances that can be used in the production of biological control agents, from pesticides to antibiotics; the discovery of new antimicrobial substances can aid in the way humans fight disease. Analysis of a local stream lead to the isolation of a fungus that appeared to produce antimicrobial substances.

The fungus could not be identified solely by morphological analysis and therefore molecular biology methods were used. DNA was extracted and subject to PCR in order to amplify the 18s ribosomal RNA (rDNA). The rDNA was amplified using fungal specific primers and was sequenced. NCBI Blast analysis of the sequenced DNA revealed that the unknown fungus belongs to the genus *Isaria*, a group of entomopathogenic fungi. This group of Sordariomycetes naturally produces chemicals that kill organisms from fungi to insects. The species identification was *I. fumosorosea*, which is known to exist in soil and on insects, but is not typically found in water. There are many subspecies within this species and thus we are examining DNA sequences of the Internal Transcribed Spacer (a non-functional RNA piece with high variation among even closely related species) to determine if the fungus belonged to a new subspecies. We are also conducting experiments to determine if the fungus produces antibacterial compounds.

## ***Comparison of BPS and BPA on Regeneration in Planaria***

**Lucia Milla** (Biology) **Madeline Schroeder** (Biology)  
Faculty Mentor: Spencer Mass (Biology)

Bisphenol-A (BPA) is used to make polycarbonate plastics and resins. BPA has been shown to act as a xenoestrogen by interacting as a ligand with estrogen receptors in a variety of model systems. The growing concerns over endocrine disruption in humans have resulted in manufacturers introducing “BPA-free” plastics. Many of these reformulations replace BPA with another bisphenol compound called bisphenol-S (BPS), which is reported to be less toxic than BPA. Prior work in our lab has demonstrated BPA toxicity and disruption of regeneration in a variety of turbellarian flatworms. This work compares the effects of BPS to BPA and provides LC50 data for both compounds in *Dugesia tigrina*. Our results show that while BPS is also capable of perturbing normal regeneration, it requires much higher doses to achieve the same effects.

## ***Presence of Estrogen Ligand Binding Domains in Planaria***

**Nichole Gaucher** (Biology) **Hannah Miller** (Biology)  
Faculty Mentor: Spencer Mass (Biology)

Bisphenol-A (BPA) is a known estrogen receptor (ER) agonist and environmental endocrine disruptor. Prior work in our lab has shown that BPA interferes with planarian regeneration at low concentrations and is lethal at high concentrations. We have also shown that tamoxifen, which is an ER antagonist, ameliorates the toxic effects of BPA and can increase survivorship in a dose dependent manner that mimics the low affinity binding reported for BPA to the ER. These data strongly suggest that there is an ER or ER-like pathway in planaria. Thus, we hypothesized that there are homologues to ER receptors in the planarian genome and looked for estrogen ligand binding domains (LBDs). The candidates for the LBDs that were selected have homologues in fly, zebrafish and mammals. These were BLASTed against an expressed sequence tag (EST) database for *Schmidtea mediterranea*. The most relevant sequences were then used to generate primers. PCR amplification and gel electrophoresis indicate that both *S. mediterranea* and *G. tigrina* have homologues with LBD sequences to an orphan nuclear receptor, a highly conserved estrogen LBD, and the beta form of the vertebrate ER.

## ***Heavy Metal Stress Effects on Pisums sativum***

**Richard Jean-Louis** (Biology/Chemistry and Black Studies)

Faculty Mentor: Hon Ho (Biology)

Heavy metals including zinc, nickel, cadmium and lead are highly toxic pollutants found in tainted soil and water, due to the wide use of pesticides and the improper disposal of batteries and other materials containing harmful chemicals. Generally, the presence of excessive amounts of these chemicals in plants, hinders nitrogen and carbohydrate metabolism, affects normal lipid formation and alters the composition of the cell membrane. It has been suggested that heavy metal-induced toxicity entails some other senescence-like processes, such as the participation of oxidative stress. It was found that heavy metal damage might be related to the effects on oxidative processes, thus hindering seed germination. The main goal of this experiment is to determine the possible adverse effects of heavy metals (Ni and Pb) on seed germination of pea plants (*Pisum sativum*) and the subsequent plant growth at different stages of development, including the stem height, formation of leaves, flowers, and seed pods as well as the biomass of the shoot and the roots. The pea seeds will be used because of their fast growth and short life cycle. It takes only 35 days for the seeds to germinate, grow, flower and form seeds. There was a preliminary trial to determine which heavy metals will be most appropriate for the project, resulting in the use of lead chloride and nickel sulfate. Heavy metal exposure should decrease the rate of seed germination and embryonic growth, in comparison to the control group.

## ***Zero-Linked Polymeric Hemoglobin (OxyVita®Hb)***

**Sarah Anvery** (Chemistry)

Faculty Mentor: John Harrington (Chemistry)

Abstract:

Revolutionizing blood science is a developing area in research today. OxyVita Hb is a zero linked, polymerized, stroma free hemoglobin, which is a promising clinical blood substitute due to its ability to deliver oxygen. Experimental work has focused on the unfolding of the hemoglobin molecules, when urea, as a denaturant, was added. It is known that hemoglobin unfolding leads to molecular unfolding and potential heme loss. A major factor in determining unfolding is tracking the heme exposure. The extent of heme exposure was determined by measuring the absorbance of the four types of hemoglobin, bovine tetrameric hemoglobin, cross-linked ( $\beta\beta$ ) bovine tetrameric hemoglobin, myoglobin, and zero-linked polymeric hemoglobin manufactured by OXYVITA, Inc. Unfolding behavior was analyzed in the Soret region (350-450 nm) which is very sensitive to hemoglobin unfolding and heme exposure. Absorbances were recorded at increasing concentrations of urea while keeping the concentration of hemoglobin constant. The results provide data for comparison of the four different hemoglobin molecules examined. It was demonstrated that the zero-linked polymeric hemoglobin, does not readily unfold and the extent of heme exposure or release is greatly reduced.

## ***POGIL activities for General Chemistry at SUNY New Paltz***

**Kristine Hanley** (Chemistry)

Faculty Mentor: Pamela St. John (Chemistry)

POGIL activities for General Chemistry at SUNY New Paltz.

In the college-level General Chemistry course at SUNY New Paltz, students are given Process Oriented Guided Inquiry Learning (POGIL) activities that are designed to effectively engage students and allow students to collaborate in groups of their peers to strengthen students' knowledge in chemistry. The POGIL activities help to develop the students' meta-cognitive, problem-solving and inquiry thinking skills. Each activity begins with learning objectives and success criteria to ensure that the student understands what they are expected to accomplish. Models are used in each activity to help students understand a given concept and/or methodology in chemistry and they are followed by a set of key questions, which are direct questions based on the model that help to build a foundation of knowledge. Skill exercises and problems are a combination of convergent and divergent questions that build upon the knowledge from the models. Students have to synthesize and analyze the model to answer the questions. Instructors only act as facilitators during the activity, intervening when groups have questions, are stuck on a problem, or are following the wrong path in an attempt to solve a problem. POGIL is designed so that students develop their problem-solving skills and become better learners.

## ***Aggregates of Oligonucleotides and a Surfactant***

**Adam Rimawi** (Chemistry) **Kathleen Westervelt** (Chemistry)

Faculty Mentor: Pamela St. John (Chemistry)

Characterization of aggregates formed from oligonucleotides of 20 to 100 bases in length in the presence of the surfactant, CTAB (cetyltrimethylammonium bromide) has been performed. UV spectroscopy was used to observe changes in the absorbance spectra of various length oligonucleotides in the presence of CTAB as a function of CTAB concentration. The results indicate that the changes are a result of light scattering from various size aggregates formed between oligonucleotides and CTAB when the ratio of CTAB to oligonucleotide concentration is about 0.5 or larger. Electrophoresis has been used to compare the mobilities of both double and single stranded DNA in the presence of CTAB and the results show that the DNA – CTAB samples give rise to smeared bands indicative of a range of aggregate sizes and that the aggregates may be falling apart as they move through the gel. Atomic force microscopy (AFM) was used to obtain topographical images of the aggregates that were dried on single crystal silicon surfaces and imaged in fluid and they showed that they varied in size from nanometers to microns. Force spectroscopy was performed on the aggregates using the AFM to determine the adhesion between the tip and aggregate surface.

## ***Molecular Constants of Linear Molecules***

**Mauricio Kleinberg** (Chemistry)

Faculty Mentor: Pamela St. John (Chemistry)

Spectroscopy has been used to investigate the vibrational-rotational transitions in several diatomic molecules however, it can also be used in polyatomic linear molecules, since they can all be modeled as simple harmonic oscillators. Experiments like these are ideal for undergraduate Physical Chemistry labs since the analyses are fairly straight forward and the concepts are typically covered in a quantum chemistry course. This project involves the use of a FT IR spectrometer to obtain rotational-vibrational spectra of linear molecules, including carbon monoxide and nitrous oxide, in order to obtain the rotational constants, the moments of inertia, and the bonds lengths between atoms in the molecules. In addition, the harmonic frequency, anharmonicity constant, rotation-vibration interaction, and centrifugal distortion constant can be obtained. Including a number of different gases in the rotation-vibration experiment makes it possible to assign different molecules to students groups in the lab. In addition, using gases that are readily available, such as CO<sub>2</sub>, CO, N<sub>2</sub>O (from whipped cream dispensers), helps to avoid the need for purchasing lecture bottles.

## ***Quantifying Cell Production of Ubiquinone-8 by Host-Independent B.Bacteriovorus***

**Ryan Taylor** (Chemistry)

Faculty Mentor: Megan Ferguson (Chemistry)

*Bdellovibrio bacteriovorus* is a predatory aerobic bacterium that attacks a wide variety of other Gram-negative bacteria, but non-predatory, host-independent (HI) variants can also be isolated and grown. HI *B. bacteriovorus* produce ubiquinone-8 on their outer membrane, whereas extractions from predatory *B. bacteriovorus* yield no detectable ubiquinone-8. Ubiquinone-8 has been documented to play various roles in other organisms including metal chelation, antibacterial activity, participation in the electron transport chain, proton acquisition, and redox sensing. To determine its function in HI *B. bacteriovorus* and to understand why ubiquinone-8 production is so sharply upregulated compared to the predatory wildtype, bacteria have been grown with varying access to metals and ubiquinone-8 has been extracted and quantified. Cells grow more efficiently with added Ca<sup>2+</sup> and Mg<sup>2+</sup>, but even after accounting for cell mass there is more ubiquinone-8 produced when cells are grown with elevated Ca<sup>2+</sup> and Mg<sup>2+</sup> concentrations.

## *Efforts Toward Syntheses of Isomeric Macrocycles*

**Jiries Meehan-Atrash** (Chemistry) **Hannah Powers** (Chemistry)

Faculty Mentor: Frantz Andersen (Chemistry)

Previous work in our laboratory has focused on the generation of macrocycles through the reductive amination of bifunctional benzaldehyde derivatives with enantiomerically pure trans-1,2-diaminocyclohexane (DACH). When conformationally flexible dialdehydes are used, the [1+1] macrocyclic diamine products can be isolated in moderate yields by column chromatography. Recently, we found that the use of a rigid para-linked dialdehyde containing 1,1'-bi-2-naphthol (BINOL) gave good yields of the [2+2] tetraamine macrocycle without the need for chromatography. To explore the generality of this process, we have synthesized the ortho- and meta-linked isomers of the BINOL-containing dialdehyde precursor, and are pursuing comparative studies to ascertain the role of the dialdehyde linkage geometry on the size of the macrocycle formed. Because both the DACH and BINOL subunits are stereogenic, multiple diastereomers of each macrocyclic should in principle be accessible, depending on the stereochemistry of the starting materials. Additionally, the macrocyclic targets may have applications in molecular recognition and enantioselective synthesis because they present multiple amino groups within their conformationally restricted interior cavities.

## *Formation Constants of Acylhydrazones and Imines in Water*

**Erik Van Vlack** (Chemistry) **Leander Bromley** (Chemistry)

Faculty Mentor: Frantz Folmer-Andersen (Chemistry)

We have developed <sup>1</sup>H NMR and UV-Vis based methods for studying the reversible condensations of benzaldehyde derivatives with amino group nucleophiles (amines and acylhydrazines) in water. Thermodynamically, these reactions are governed by two competing equilibria: (1) the protonation of the nucleophile ( $K_{a-1}$ ), and (2) the condensation of the nucleophile with the aldehyde to form the imine (or acylhydrazone) adduct ( $K$ ). Both  $K$  and  $K_{a-1}$  may simultaneously be determined from variations in adduct yield with solution pH. We observe several key differences between imine and acylhydrazone condensations: (i) acylhydrazones are found to be significantly more stable than imines, (ii) depending on the pH, the kinetics of acylhydrazone condensation equilibria may be much slower than those for imines, and (iii) because acylhydrazines are less basic than amines, acylhydrazones can persist under much more acidic conditions ( $\text{pH} > 3$ ) than can imines. In order to examine the affect the electronic structure of the aldehyde on  $K$ , series of benzaldehyde derivatives were prepared containing various substituents in the meta and para positions and also solubilizing - $(\text{CH}_2\text{O})_6\text{CH}_3$  groups. A rough Hammett correlation is apparent, with electron-withdrawing groups on the aldehyde enhancing the thermodynamic stabilities of both imines and acylhydrazones.

## ***Categorical Perception in Indian-English Multilinguals***

**Susan Mason** (Communication Disorders) **Keith Angrisani** (Psychobiology)

Faculty Mentor: Anne Olmstead (Psychology)

Categorical perception is the phenomena in which perceivers separate speech sounds along a continuum into discrete categories, rather than perceive gradual change. These categories are dependent on the phonological rules of one's language. We propose a novel look at categorical perception by examining how bilingual speakers with two different phonetic inventories categorize sounds along a continuum, with both inventories exerting influence. Our participants will be bilingual speakers of Telugu, a language spoken in India, and English. Telugu and English have different phonological rules for categorizing sounds based on voice onset times (VOT). Telugu makes a three-way distinction between negative, short-lag, and long-lag VOTs for bilabial stop consonants, such as /b/ and /p/. English makes a two-way distinction for these sounds. Stimuli will vary along an 11-step continuum from the prevoiced region (negative VOT) to the aspirated region (long-lag VOT) of bilabial stops. Our participants will be asked to categorize these stimuli once as if they were in Telugu and once as if they were in English. This manipulation may result in participants demonstrating two sets of categories for these sounds (one for each language), or one set that does not change based on the presented language. These categorizations will show the influence, if any, of these two different phonetic inventories on perception. We hypothesize that category boundaries will change based on the presented language.

## ***U.S. Cotton Subsidies & Major Exporters in the Developing World***

**Sergio Romero Lopez** (Economics)

Faculty Mentor: Mona Ali (Economics)

U.S. agricultural subsidies have been a subject of much contemporary debate because of their distorting effect on world prices. During the last decade some developing countries including Brazil, Benin, and Mali have argued that subsidies to the domestic cotton industry has had a negative effect on the world price, and consequently, on their cotton export revenues. The purpose of this paper is to analyze how U.S. cotton subsidies from 2000 to 2011 has affected the cotton export revenues for the 9 top cotton exporters within the developing world, all of them among the top 15 of global cotton exporters. Most of the studies on this topic simulated scenarios where subsidies were eliminated, all of them concluding that cotton exports revenues of developing countries are reduced because of the decrease in world price. In this paper, I utilize country-based econometric models in order to infer how U.S. subsidies affect the cotton exports revenues of each country. In order to conduct this analysis, I will use as the dependent variable the income coming from cotton exports ( $\text{exports} \times \text{worldprice}$ ). As dependent variables I will use FDI and GDP per capita due to their correlation with the exports. The other dependent variable is the one of interest for this paper, U.S. cotton subsidies / Total U.S. cotton subsidies. The final results suggest that U.S. cotton subsidies is one of the factors that cause a negative effect on the cotton exports revenues of developing countries, even though there are some exceptions that will also be explained.

## ***Micro-finance and Millennium Development Goal No. 2***

**Tania La Menza** (Economics)

Faculty Mentor: Mona Ali (Economics)

Micro-finance—loans to low-income individuals—has long been associated with poverty reduction. More recently, research has focused on evaluating the capacity of micro-finance to contribute to the social measures of economic development. The U.N's Millennium Development Goals (MDGs) address these other dimensions of development. Among other things, the second MDG wants to “ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling”. The purpose of my research is to evaluate the impact that access to micro-credits has had on primary education. Most of the previous studies have focused on the impact of micro-finance at a micro-level using field-experiments. I aim to contribute to the field by using country-based econometric models to test the impact of micro-credit use on primary school educational attainment for six developing countries from 1997 to 2010. My proxy variable for micro-credit use is the average number of active borrowers in micro-finance institutions in these countries as a share of the country's total population. I then evaluate the potential impact of micro-finance on primary education in terms of both enrollment and completion rates. Findings for the different countries are varied suggesting that micro-finance has not had an unequivocally positive impact on primary education. Alternative explanations for these results are discussed in the paper.

## ***Influences of Renewable Energy Use***

**Jose M. Rodriguez del Pozo** (Economics)

Faculty Mentor: Simin Mozayeni (Economics)

As demand for electricity increases, the need for clean sources of energy for its production that wouldn't harm the environment arises. Wind, solar and hydroelectric energy present viable alternatives to widely used fossil-based fuel sources. However, the high costs of these emerging alternatives hinder their applications. Many countries, nevertheless, are already implementing policies and special subsidies to augment uses of renewable energy.

Hence, this research aims to compare countries efforts for encouraging use of renewable energy in order to reduce CO<sub>2</sub> emission. The cases studies include countries with different cultural and socioeconomic backgrounds and economic capacity. These countries include: China, USA, Germany, Spain, Iceland and Norway. In this study, we observe the effect of policy on advancing the use of influences of renewable sources in production of electric power. The econometric model for this research aims at investigating the effects of government subsidies on use of renewable energy. This investigation also includes a regression that will shed light on the effect of renewable energy on emissions of CO<sub>2</sub>. Furthermore, a priori, we expect to see a positive relation between income, measured by per capita GDP and the use of renewable energy. The preliminary findings of this research surprisingly, show that increase in the use of renewable sources for production of electricity does not tend to substantially reduce CO<sub>2</sub> emissions. This research has important policy implications for reduction of CO<sub>2</sub> and its impact on the environment.



## ***Freedom and Economic Growth in Latin America***

**Patricia Moreno** (Economics)

Faculty Mentor: Mona Ali (Economics)

My research examines whether more freedom (narrowly understood as the ability of individuals to make their own economic decisions) within a Latin American country is correlated with greater economic growth for the nation. I test my hypothesis for Argentina, Brazil, Costa Rica, the Dominican Republic, Honduras and Nicaragua from 1990-2010. I used the Fraser Index to quantify the degree of freedom within the different countries. Recent research has emphasized that economic growth itself driving greater economic freedom. My own contribution shows how overall levels of economic freedom are correlated with more economic growth. In doing so, I use country-based econometric regressions to test the impact of freedom on economic growth. In the case of Argentina, Brazil, the Dominican Republic and Nicaragua I found a negative correlation between freedom and its economic growth. However, with Costa Rica and Honduras as freedom increases this leads to more economic growth over time, confirming my hypothesis. My results are consistent with studies that find that free markets and the protection of property rights —important components of the Fraser Index— are key to understanding the links between economic freedom and growth. However each country's individual characteristics, history and stage of development differentially impacts the relationship between freedom and growth.

## ***Can Foreign Aid boost a Country's Economic growth?***

**Ying Tien Lee** (Economics)

Faculty Mentor: Mona Ali (Economics)

Can foreign aid boost a country's economic growth? My research examines the impact of foreign aid on the economic growth of countries based on their income level. Using World Bank data, I categorized the income levels into four classes: low-income, low-middle income, middle-high income and high-income. Although there are many studies examining the impact of foreign aid on economic growth, results are generally mixed with only some studies indicating a positive impact of aid on economic growth. Previous studies attribute the success and failure of aid to the underlying condition of a country which includes its level of economic development, business conditions and governance. My econometric analysis shows that the impact of foreign aid has a beneficial impact on low-income and middle-high income countries but appears to have a less beneficial impact on low- middle income and high-income countries. This suggests that the effectiveness of foreign aid may be influenced by the income level of the recipient countries. My findings suggest that income levels could be used as a metric to provide a forecast for the effectiveness of foreign aid.

## ***Can Economic Growth Lead to Less Environmental Degradation?***

**Nicholas Hranitz** (Economics)

Faculty Mentor: Mona Ali (Economics)

Is it possible that economic growth can actually lead to a reduction in environmental degradation? This is the hypothesis behind the Environmental Kuznets Curve (EKC), which argues that when a certain level of GDP per-capita is reached, further economic growth can result in significant reductions in pollution, which when graphed appears as an inverted-U shaped curve. This is possible due to changes in the industrial composition of an economy, implementation of environmental regulations, improvements in green-technology, and the increased environmental awareness that comes with progressive economic growth. Since its conception, the EKC has been a controversial hypothesis, with some studies supporting and others disproving its existence. My study will look at changes in GDP per-capita and its effect on one pollutant in particular, CO<sub>2</sub>, for ten advanced and rapidly developing countries including China, Brazil and the U.S. from 1961 to 2009. My country-based regression analysis show that instead of the expected inverted-U EKC relationship, most countries had a relationship that followed an “N” shaped pattern where emissions increased, fell, but then rose again. Given the predominance of the “N” shaped EKC curve, my results suggest that economic growth and its corollaries are not enough to counterbalance the environmental impact of increased production and consumption. Thus additional efforts must be made if we wish to achieve a reduction in CO<sub>2</sub> emissions in the long run.

## ***Monetary Policy and the Stock Market***

**Christopher Coleman** (Economics)

Faculty Mentor: Mona Ali (Economics)

My analysis examines the long-run relationship between U.S. monetary policy and investor sentiment on stock market movements. Economic research finds that both the stock market and investor sentiment—for instance, Kurov (2010) and Bomfim (2003)—react to monetary policy changes. The theoretical framework that I base my study on explains that when the Federal Reserve changes monetary policy, stock market investors tend to respond positively. The Federal Funds Rate is the benchmark interest rate that I use as an indicator of monetary policy changes. Investor sentiment is an index measuring the profitability and mood of the stock market. I tested for the impact of changes in investor sentiment and monetary policy for three different stock market indexes—the S&P 500, the Dow Jones Industrial Average, and the NASDAQ – from 1965 to 2010. My regression analysis evaluates the differential impact of changes in the fed funds rate and investor sentiment on the three main stock indexes.

## ***Mapping a Medieval Career: Jean Gerson's Joan of Arc Decision***

**Miriam Ward** (History & Digital Media Production)  
Faculty Mentor: Michael Vargas (History)

My current project, generously funded as a part of the Spring 2013 AYURE program, uses digital humanities technologies to model, map, and present the decision making and evolution of Jean Gerson's mystical theology. Gerson became the chancellor of the University of Paris in 1395; he influenced a number of church councils treating the catastrophic Papal Schism; he sought to heal disputes within the family of the French kings; and he played a key part in the failed defense of Joan of Arc. My project grew out of previous research on Gerson's views on women's mysticism in Professor Vargas' Medieval Europe class. My work seeks to convey that Gerson drew from an extremely diverse multifaceted career to defend Joan of Arc, a threshold moment in his career reflecting the culmination of a lifetime's work.

The complexities of Gerson's versatile career are so intricate that traditional historical methodologies seem insufficient. In order to understand Gerson's complex views on mysticism, I am studying the primary works of Gerson and maintaining a database, tracking the key words used in his published letters, sermons, tracts and treatises. In addition to a traditional research paper, my project utilizes online interactive timeline software Tiki-Toki and data collection methodologies. Studying and tracing the words used in Gerson's writings show a correlation between his writings on mysticism and the point in his career- ultimately leading up to defend Joan of Arc in 1429.

## ***New Strategies in Bilingual Education***

**Rebecca Joslin** (Languages, Literature and Cultures/Spanish, Secondary Education)  
Faculty Mentor: Daynira Roja-Sosa (Foreign Languages)

Connecting a language with a particular country is a social construct that promotes patriotism and administrative efficiency, but it also creates a dominant language that subjugates other languages, thus subjugating people. Multiculturalism is an attempt by public schools to develop cultural sensitivity to promote social justice, but it is criticized for its failure to deliver. Also, it is accused of highlighting differences of cultures and further segregating communities. The problem is it is a superficial add-on to a system inherently mono-cultural. Public schools promulgate a state ideology, which is introduced as early as kindergarten with the imposition of a dominant language. The purpose of this study is to re-examine the connection between language and power and ascertain whether new educational models in bilingual education can offer a radical alternative. In order to do this, various models of bilingual schools are examined, as well as a case study on multiethnic education for the promotion of social justice.

## ***Spanish-English Code-Switching in the United States***

**Samantha Abravanel** (Languages, Literatures and Cultures)

Faculty Mentor: Deyanira Rojas-Sosa (Languages, Literatures & Cultures)

The use of two languages in a single discourse is a linguistic phenomenon known as code switching that has been occurring in the United States for years. This occurrence is common in bilingual communities such as the Spanish speaking community in the United States. Spanish-English bilinguals use this as not only a form of communication but also as an identity that represents part of their culture. For the purposes of this study I focused on a population that has been formally educated in both languages and are considered to be fluent bilinguals. Effective code-switching requires a speaker to follow the syntactic and semantic rules of both languages even if they are subconsciously unaware of these restrictions. This study focuses on researching Native Spanish speakers and their use of both Spanish and English in their daily speech. They were asked to complete a two-part questionnaire; the first part examines how recent social medias affect code-switching and language use. The second part assesses how acceptable or unacceptable they find certain uses of code-switching to be. These results are then tested against the rules and restrictions that have been established by linguists. There are multiple extra-linguistic factors that influence the way we speak and this study can help to determine what kind of a role new social medias play in a bilingual's use of code-switching.

## ***Domestic Violence within the Triangle Countries of Honduras, El Salvador and Guatemala***

**Veraluz De Leon** (Latin American & Caribbean Studies)

Faculty Mentor: Ligia Aldana (Latin American & Caribbean Studies)

This investigation focuses on domestic violence within what is known as the Northern Triangle countries of Central America, Honduras, Guatemala and El Salvador. Although, domestic violence might go hand in hand with misogynist patriarchal ideologies prevalent in Central America, as recent as the 1970s several different causes were identified for the staggering rate of domestic violence against women. In comparison to many other Latin American countries, Honduras, Guatemala and El Salvador have a higher rate of gender violence due to ongoing corruption and overwhelming gang and state sponsored violence. The Central American region has faced political, economic and social upheaval, and each country has been affected differently. This study focuses on statistics about each country's history of gender violence, to demonstrate in a quantitative manner how domestic violence has increased. The aim is to underline the causes for the increase, and to examine the help and support currently offered to assist those who have been affected by hate and violent crimes, and even death. In addition, this study examines data and information offered in the independent analysis on gender violence, Central America (Guatemala, El Salvador, Honduras, Nicaragua): Patterns of Human Rights Violations, compiled by the office of the United Nations High Commissioner for Refugees.

# ***Two-Way Immersion vs. Structured English Immersion: A Synthesis of Methodology and Further Academic Implications***

**Remy Le Dily** (Linguistics)

Faculty Mentor: Oksana Laleko (Linguistics)

Within the realm of Bilingual Education there are two contributing curricular models that, although similar in methodology, instill two completely different beliefs and mindsets about bilingualism: The Structured (Sheltered) Immersion Model, which uses the child's native language solely to supplement an English only-curriculum vs. The Two-Way Immersion Model, which integrates Native-English and native speakers of other languages with the goals of promoting high academic achievement, first- and second-language development, and cross-cultural understanding for all students. Cummins' threshold hypothesis states that bilinguals "must achieve threshold levels of bilingual proficiency to avoid detrimental effects on cognition and potentially to allow positive effects" (Cummins 1979), which suggests that by affirming a balanced bilingual/biliterate curriculum, the Two-Way Immersion Model offers more substantial, academic enrichment than that of the Structured Immersion Model.

In this paper, I evaluate the programs of Voorhies Elementary School in Bakersfield, California and Casa Loma Elementary School in Bakersfield, California. I compare them in terms of their goals and methodologies in order to explore specific techniques common to the Two-Way Immersion Model and the Structured Immersion Model. I examine which educational model has stronger implications for the students' future achievement/outcomes within the discourses of school. I provide quantifiable data to suggest that non-native English speakers enrolled in Two-

## ***The Stigmatizing Nature of Disaster***

**Erin Kellar** (Psychology)

Faculty Mentor: Greta Winograd (Psychology)

In a time of disaster, there is an overarching air of uncertainty. The resources that may have previously been accessible and readily available, are no longer guaranteed. When resources become scarce in a time when safety is at stake, decisions are made about who gets them. Being that people living with severe mental illness lack access to resources even without the added constraints of a major disaster, their entitlement to such commodities can become even more questionable. The lack of accessibility is very closely intertwined with the stigma of mental illness. This paper will explore the extent to which stigma influences the ability for these individuals to attain the necessary tools for maintaining wellness at each stage of a disaster. Such an examination will serve to clarify the truth that challenges faced interpersonally, within the community and through government agencies substantially influences the ability for this group to attain such resources as financial support, decent quality housing and other forms of shelter, in addition to mental and physical health care. Each of these resources serves to maintain physical and mental well-being, and are precisely the resources that become few and far between in the event of a disaster. Without the access to resources, or the appropriate external networks to attain such resources, we must contemplate where this leaves those living with a severe mental illness, when the surrounding environment is far from stable.

## ***Women on Hormonal Contraceptives: A Different World?***

**Rebecca Newmark** (Psychology) **Melvin Philip** (Psychology)

Faculty Mentor: Glenn Geher (Psychology)

Normally cycling females experience natural cyclic shifts in various traits. When women use hormonal contraception (HC), these natural cyclical changes are no longer present. Many physical differences between HC users and non-users have been examined. However, far fewer psychological and behavioral traits that are likely associated with hormonal contraceptive use have been studied. Our goal is to examine dispositional and behavioral traits that are affected by HC use. The variables to be examined include life-history strategy, infidelity, sociosexuality, intrasexual competition, female social-networking, and risk-taking behavior. The broad prediction is that a lack of ovulation will lead to a higher proportion of time in a state of long-term mating. Thus, women on HC are predicted to show markers of a relatively slow life history and low levels of sociosexuality, coupled with low levels of both intrasexual competition and risky behavior, when compared to naturally cycling females.

## ***Interest: Is it Helpful or Hurtful for Learning?***

**Craig Smith** (Psychology)

Faculty Mentor: Corwin Senko (Psychology)

Teachers often seek ways to stimulate students' interest, and students often weigh interest heavily when evaluating teaching effectiveness. Both assume that interest enhances learning and achievement. Many studies show that interest can aid learning, to a small degree, by arousing students, guiding their attention, and speeding up their processing of information. Our study explores whether it might also jeopardize learning. We propose that high levels of interest can lead students to overestimate how well they understand course content. We developed an internet-based experiment to test this hypothesis. Participants were given a tutorial about the physics of lightning, a topic for which we expected them to have minimal prior knowledge. This tutorial was fact-based in the control condition but dressed up with interest-enhancing features in another pair of conditions. After completing the tutorial, participants reported their level of confidence in their understand of its key points and their expectations for a forthcoming quiz. They then completed a recall quiz and a problem-solving quiz. This allowed us to test if interest-enhancements inflate confidence and also if this confidence is miscalibrated to their actual knowledge, as represented by their quiz performance. Preliminary results and implications will be discussed.

## ***Evaluating Noise-Vocoded Speech and the Irrelevant Sound Effect***

**Josh Dorsi** (Psychology) **Daniel Cassidy** (Psychology) **Brian George** (Psychology)  
Faculty Mentor: Navin Viswanathan (Psychology)

The Irrelevant Sound Effect (ISE) refers to the finding that when subjects are asked to recall a series of letters in order, the presence of speech in the background during presentation results in poorer recall performance than either white noise or silence. While ISE occurs with other non-speech backgrounds, speech has been shown to produce the strongest effects. Several studies have sought to identify the properties of background distractors that cause ISE. The current study used noise-vocoded speech as a background to evaluate the importance of the intensity profile of speech in producing ISE. Noise-vocoded speech is synthesized to retain the intensity information, but not the frequency characteristics, of speech by dividing white noise into amplitude channels that match amplitude channels present in natural speech. Often, noise-vocoded speech is not recognized as speech without training, however, increasing the number of amplitude channels increases the likelihood that the signal will be perceived as speech. Participants were visually presented with a series of seven letters in the presence of either noise-vocoded speech or white noise. Different groups of participants heard noise-vocoded backgrounds with different numbers of channels. Serial recall was lower in noise vocoded speech background conditions compared to white noise overall. This suggests that noise vocoded speech contains critical properties that produce the irrelevant sound effect. Preliminary data suggest a relationship between the number of channels and amount of disruption. Future studies will investigate whether training participants to recognize noise-vocoded speech will affect the level of impairment of recall.

## ***Are You Smarter than a Personal Ad?: An Ability-Based Measure of Mating Intelligence***

**Raina Hafftk**a (Psychology) **Christopher Farrington** (SUNY New Paltz) **Rebecca Newmark** (Psychology) **Briana Tauber** (Psychology) **Daryn Bleach** (Anthropology/Art/Creative Writing) **Jamille Borer** (Psychology)  
Faculty Mentor: Glenn Geher (Psychology)

Geher and Kaufman (2007) were the first to devise a measurement of Mating Intelligence (MI). While the MI construct is still in its infancy, their self-report MI scale has been used in a handful of studies whose goal is to further understand human mating behavior. This research aims to create a valid ability-based measure of MI. Two separate studies will be conducted; the first will require participants to create personal advertisements seeking a mate, and the second will require another group of participants to rate the personal ads created in Study 1 on various attributes (e.g., attractiveness, authenticity, IQ, successfulness in attracting a mate). Together, these studies will provide us with greater understanding of the MI construct. It will allow us to see individual differences in the cross-sex mind reading and mate-deception domains of MI originally developed by Geher and Kaufman (2007), grasp a better understanding of human mating behavior, and further validate the MI construct as a whole.

## ***Can Individuals Distinguish Dread from Anxiety?***

**Tina Guerin** (Psychology) **Gabriela Guzzo** (Psychology) **Rami Ismail** (Psychology) **Lori Lynch** (Psychology) **Emma Scott** (Psychology)  
Faculty Mentor: Maryalice Citera (Psychology)

While most people are familiar with the feeling of dread, it has received little research attention. The goal of this study was to identify descriptive terms that delineated between anxiety and dread. Participants (N=261) were randomly assigned to read either an anxiety or dread description and asked to provide 1-word to define it. Anxiety was described as experiencing: high arousal, “butterflies” in the stomach, sweaty palms, a fast beating heart, feeling nervous, shaky and flushed as well as having tense muscles. Dread, in contrast, was described as experiencing low arousal, a “blahh” lethargic feeling, dragging feet, sinking stomach and feeling drained of energy. The most frequently used words to describe anxiety were: anxiety, nervous, apprehension, and excited and to describe dread were: anxiety, dread, depression, nervous, and apprehension. The term “anxiety” was used significantly more frequently to describe anxiety (N=72) than dread (N=24) ( $X^2(1) = 24.00$ ,  $p = .000$ ). The term “dread” was used to describe dread 17 times, but never to describe anxiety ( $X^2(1) = 17.00$ ,  $p = .001$ ). Likewise, the term “depression” was used to describe dread 11 times, but never to describe anxiety ( $X^2(1) = 11.00$ ,  $p = .000$ ). The frequency of use of the terms “nervous” and “apprehension” did not vary significantly across the dread and anxiety conditions. The results showed that these two anticipatory emotions could be distinguished from each other, but some similarity existed as well.

## ***Sensitivity to VOT-vowel length covariation***

**Sarath Manuel** (Psychology) **Julianne Reilly** (Psychology) **Angelo D'Addario** (Psychology) **Susan Mason** (Communication Disorders)  
Faculty Mentors: Anne J. Olmstead (Psychology) Navin Viswanathan (Psychology)

In both Spanish and English, unvoiced stop consonants (p,t,k) differ from their voiced counterparts (b,d,g) in voice onset time (VOT) (Lisker & Abramson, 1963). In English, but not in Spanish, the VOT differences are accompanied by a systematic lengthening of vowels following the voiced consonants (e.g., Allen and Miller, 1999). We examined the sensitivity of English monolinguals and Spanish monolinguals to the VOT-vowel length relationship using a pa-ba categorical perception task in which vowel length was varied. Results showed that, as expected, Spanish monolinguals were less sensitive to the VOT-vowel length relationship than English monolinguals. Additionally, Spanish listeners demonstrate a reliance on vowel duration to differentiate English tense-lax vowels in speech perception and production, while English listeners rely on spectral cues (Kondaurova & Francis, 2008). In our current study, English listeners are engaged in a perceptual task with a four-way contrast based on initial consonant voicing and a tense-lax vowel distinction created from non-native English speech. By manipulating English speech from a native Spanish speaker, we created speech tokens that lack the spectral information typically present in the English tense-lax distinction. Results would indicate how English speakers react to temporally based acoustic information.



# ***Students from Underrepresented Backgrounds: Mental Health, Bicultural Self-Efficacy and Belonging***

**Alexandria Jardine** (Psychology)

Faculty Mentor: Greta Winograd (Psychology)

This study investigates how stereotype threat, sense of belonging, feelings about campus environment and bicultural self-efficacy relate to mental health. We predicted mental health symptoms would be positively correlated with stereotype threat and negatively related to remaining variables. 95 freshmen from underrepresented backgrounds who are in opportunity programs took surveys on performance burden, bicultural self-efficacy, university environment, cultural congruity, stress, anxiety and depression. Mental well-being improved as bicultural self-efficacy and sense of belonging increased and worsened as stereotype threat levels increased. Anxiety was significantly related to social groundedness ( $r = -.298, p = .005$ ), positive attitudes ( $r = -.237, p = .026$ ), performance burden ( $r = .315, p = .003$ ), cultural congruity ( $r = -.398, p = .000$ ) and university environment ( $r = -.324, p = .002$ ). A statistically significant relationship was found between depression and performance burden ( $r = .229, p = .027$ ) and cultural congruity ( $r = -.255, p = .014$ ). Perceived stress was related to cultural congruity ( $r = -.319, p = .002$ ) and university environment ( $r = -.302, p = .003$ ) in a statistically significant manner. Statistical significance was found between impairment and cultural congruity ( $r = -.352, p = .001$ ) and comfort within university environment ( $r = -.266, p = .010$ ). Results support campus initiatives that welcome and support students from underrepresented backgrounds.

# ***Career Choice Anxiety among Graduating College Students***

**Kimberly Lepore** (Psychology) **Vincenzina Duno** (Psychology)

**Anna Okurowski** (Psychology)

Faculty Mentor: Douglas Maynard (Psychology)

As college seniors approach graduation, they often wonder about the direction their lives are headed next. The process of choosing a career path, and the anxiety which can accompany this choice, can critically impact a young adult's success or failure in that endeavor. The purpose of this pilot study was to determine the antecedents and consequences of career choice anxiety amongst graduating college seniors. Data were collected from graduating SUNY New Paltz seniors via an online survey which included measures of dispositional, parental, and educational/vocational factors as they related to career choice anxiety. The survey also measured job and grad school search behaviors. Core self-evaluations, extraversion, and participation in extracurricular activities were found to have significant negative relationships with career anxiety.

In addition, student perceptions of parental interference were positively related to one's career choice anxiety. This is consistent with previous research, which finds that parental involvement can greatly impact an adolescent's career choice anxiety. Based on these findings, we are developing a follow-up study which explores peer and parental influences on career-related anxiety and decision-making processes. Social cognitive theory will be utilized to hypothesize the ways in which parents and peers can influence student self-efficacy and outcome expectations. In this poster, we will outline the design and research hypotheses of this project.

## ***Examining the Distinctions Among Anticipatory Emotions***

**Tina Guerin** (Psychology) **Gabriela Guzzo** (Psychology) **Rami Ismail** (Psychology) **Lori Lynch** (Psychology) **Emma Scott** (Psychology)  
Faculty Mentor: Maryalice Citera (Psychology)

Individuals may experience a variety of anticipatory emotional reactions that vary in terms of affect (positive vs. negative) and arousal (high vs. low). The purpose of our study was to compare ratings on 4 different anticipatory emotions (anxiety, enthusiasm, contentment, and dread) to see if they could be distinguished. Participants were randomly assigned to read 1 of the 4 anticipatory emotion descriptions, asked to describe a situation in which they felt that way, and rated the extent to which a variety of emotion words described it. We factor analyzed the ratings and identified 4 factors: Anxious (nervous, shaky), Sluggish (low energy, sluggish) Enthusiastic (excited, thrilled), Contented (serene, calm). A scale for each factor was created and one-way ANOVAs run for each. The purpose was to see if individuals rated the description highest on its corresponding emotion word factor. The results showed significant effects for enthusiastic, sluggish, and contented. For these three rating measures, the highest ratings were given to the corresponding emotion condition (i.e., enthusiasm was rated highest in the enthusiastic condition). The sole exception was for the anxious ratings. Anxious ratings were higher for anxiety than for enthusiasm and contentment, but did not significantly differ between the anxiety and dread conditions. The results suggest that people make distinctions among the 4 anticipated emotions, but there is some overlap between anxiety and dread.

## ***Theses and Dissertations: The Role of Anticipatory Emotions***

**Tina Guerin** (Psychology) **Gabriela Guzzo** (Psychology) **Rami Ismail** (Psychology) **Lori Lynch** (Psychology) **Emma Scott** (Psychology)  
Faculty Mentor: Maryalice Citera (Psychology)

Despite completing a number of degree requirements, many graduate students fail to finish their thesis/dissertation. While the failure to complete this requirement may be attributed to a variety of factors, the current study examined the role of anticipatory emotions, dispositional factors (e.g., procrastination, engagement) and critical deadlines. Graduate students in the process of completing their thesis/dissertation were asked to respond to questions measuring individual difference variables of engagement, Big-5 Personality, persistence, procrastination, and sources of self-efficacy. Each week, participants reported goals for the coming week and would then report progress and satisfaction on the goals they set for the week before. At this point, data collection is still in progress.

## ***Neural Correlates of Processing in Second Language Learning***

**Nathan Earl** (Psychology) **Michael Acerra** (Psychobiology) **Elizabeth Sacchi** (Psychobiology) **Emily Heimbender** (Psychobiology)  
Faculty Mentor: Giordana Grossi (Psychology)

This study investigated visual event-related potentials reflecting orthographic and lexical processing in students of Spanish and control participants. In past studies, the negative electrical potential elicited 130-200ms post-stimulus (N1), has been shown to increase in amplitude for high-frequency words than low-frequency words, as well as for consonant strings as opposed to real words. The N1 has also been shown to be more lateralized in the left hemisphere with increased proficiency in a language. The present study investigated whether increased proficiency in learning Spanish in late bilinguals affected the amplitude and lateralization of the N1. Participants were grouped according to expertise in Spanish (Advanced, Intermediate, or Control) and performed two lexical decision tasks with English and Spanish words. Words in the two languages were matched on lexical and orthographic characteristics. The N1 was strongly lateralized towards the left posterior scalp for both languages in learners of Spanish, but was bilateral for monolingual controls (hemisphere x group interaction). Translation accuracy of the Spanish words was correlated with N1 asymmetry over the left hemisphere, specifically the occipital and parietal regions. These data suggest that increased experience with a second language is associated with increased lateralization in the left hemisphere.

## ***The Impact of an Experiential Program on Homophobic Attitudes***

**Jennifer Maurer** (Student Development)  
Faculty Mentor: Robin Cohen- La Valle (Associate Dean of Students)

The purpose of the research is to determine whether hands-on experiential programming done by campus organizations affects their participants in the way that they set out to achieve. This particular research study looks at whether a program entitled “Tunnel of Oppression” influences students self reported attitudes regarding homophobia. The program is a “handmade tunnel” within a large room in the Student Union building on campus. The students walk through this tunnel and see different scenes of oppression being acted out by volunteers. This study utilizes pre and post surveys to measure whether the participants attitudes have changed after attending the program. Before the participants go through the program they are debriefed on the sensitive nature of the program, and the graphic scenarios that they will see, in addition to signing a consent form. This research delves into whether this type of in your face hands on programming is affecting the the student bodies perception of the issues being confronted. Rather than delve into all of the issues the program addresses (racism, transphobia, antisemitism, nationalism, etc.), the research focused on a single issue in order to see whether its message was being lost amongst the crowd.

## ***An Alternative Perspective of Student Involvement; through a Visual Lens.***

**Marissa Stephani** (Student Development)

Faculty Mentors: Robin Cohen- La Valle (Student Development)

Andrea Frank (Photography)

The purpose of this interdisciplinary study is to examine how students prioritize and balance their personal, academic, and extracurricular, responsibilities when involved on a college campus. Student involvement will be defined as "any activity to which a student devotes physical and/or psychological energy." Three female students, whose extracurricular student involvement falls across the spectrum: minimally involved, actively involved, and overly involved, were included. The three female students were interviewed and photographed during two contrasting points of the semester, high-pressure midterm week and the low-pressure week after spring break. The photographic study hopes to visually capture the student responses to interview questions to document the student's self-perceptions of their involvement and balance of their responsibilities.

## ***Depictions of Class in 21st Century America through Reality Television***

**Frank Greenaway** (Sociology)

Faculty Mentor: Roberto Velez-Velez (Sociology)

The purpose of this research is to examine and critique reality television programs based on their depictions of class in modern America. Specifically, the most popular form of reality television, documentary style. By examining the key scenes in a wide range of programs across basic cable and network T.V, I will point out patterns of behavior demonstrated by the 'heroes' of the show as well as the setting and the plot to explain how these scenes portray the class their subjects occupy. I will do this by deconstructing these scenes using content analysis and analyzing these situations in order to fully understand how the programs portray class in America. Scenes will be measured based on numerous factors based on scenes including indicators of wealth, status, and cultural capital. In addition to these, special focus on how the 'Great Recession' changed the way class was depicted on these programs and the resurgent interest in working-class people. In a couple of years, reality television went from a focus on the glitz and glamour of shows like *The Hills* and *Laguna Beach* to portraying struggling families like in *Downsized* or 'working class warriors' like *Axe Men*. Because of this, the focus of this research will be on the difference between "wealthy" shows and "working class/Poor" shows. This topic is relevant due to television time being increasingly devoted to shows billed as "Reality T.V." Additionally, these shows are marketed to every sort of demographic, making it's reach even further, which, in turn, means its impact on society continues to grow. Its importance is heightened because these shows are marketed as 'reality', or, what is actually happening, eschewing paid actors and scripts for real people and "real" dialogue. The audience is therefore more likely to perceive these shows as real and therefore, an accurate depiction of the lives of the subjects of the shows and class distinctions in today's society.

## *Publication Opportunities for Undergraduates*

Stanford Undergraduate Research Journal is an annual peer-reviewed publication of research articles written primarily by Stanford undergraduates, but also well-qualified students at other institutions, from all academic fields. <http://surj.stanford.edu>

Pittsburgh Undergraduate Review PUR is a multidisciplinary journal that accepts papers from around the world <http://www.pur.honorscollege.pitt.edu/>

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

Undergraduate Journal for Global Business and Community, offers undergraduate students a venue for publishing works <http://jgbc.fiu.edu/index.php?journal=JGBC>

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/>

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>

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 at 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/>

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](http://www.kon.org/CFP/cfp_urjhs.html)

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.

[http://www.topgrad.com/caltech\\_undergraduate\\_research\\_journal.htm](http://www.topgrad.com/caltech_undergraduate_research_journal.htm)

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

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.

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.psych.ucla.edu/undergraduate/research>

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>

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>

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&ekmense1=8f9c37c3\\_156\\_160\\_2214\\_3](http://www.vmi.edu/show.aspx?tid=36955&id=2214&ekmense1=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](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](http://www.jurp.org/about_jurp.html)

The Allegheny Review, now entering its 31<sup>st</sup> 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://alleghenyreview.wordpress.com/>

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>

Undergraduate Journal of Service Learning and Community-Based Research

<http://www.bk.psu.edu/Academics/33679.htm>.

History Matters: An Undergraduate Journal of Historical Research.

<http://www.historymatters.appstate.edu/>

AnthroJournal is an open source journal of outstanding scholarly research papers and reports authored primarily by undergraduate and graduate college students. <http://www.anthrojournal.com/>

Valley Humanities Review <http://www.lvc.edu/vhr>

## *2012 SURE Award Recipients*

**Joseph Bacchi**, Philosophy, '13 (Bruce Milem, Philosophy)  
Overcoming "Man": The Great Health & Nietzsche's Zarathustra

**Elizabeth Koza**, History, '13 (Michael Vargas, History)  
The Emergence of Converso Identities in Late Medieval Spain

**Jade Quinn**, Theatre Arts, Creative Writing, '14 (Cyrus Mulready, English)  
The Four Prentices of London and the Conquest of the Modern Stage

**Brianna Murphy**, Ceramics, Art Education, '13 (Bryan Czibesz, Art)  
New Modes of Visualizing the Human Form: DICOM Digital Technologies and the Arts

**Daniel SanGiacomo**, Ceramics, '13 (Jennifer Woodin, Art)  
Designing Toys: An Exploration of Digital Fabrication Technologies

**Sarath Manuel**, Psychology, '13 (Navin Viswanathan, Psychology)  
Effects of accented speech backgrounds on speech perception

**Elizabeth Sacchi**, Psychology, '13 (Giordana Grossi, Psychology)  
Second language learning in late bilinguals: an ERP study

**Cody Saraceno**, Molecular Biology, '13 (Jeffrey L. Reinking, Biology)  
Is paxilline a human Estrogen Receptor alpha?

**David Charifson**, Biology: Organismal Track, '13 (David C. Richardson, Biology)  
Increased Productivity in Lake Minnewaska by Trophic Cascade

**Nicole Dimisko**, Biology: Organismal/Environment, '12 (Spencer M. Mass, Biology)  
Preparation and study of planarian tissue exposed to BPA

**Kyle Dailey**, Mathematics, '13 (David M. Clark, Mathematics)  
Exposition of Murskiĭ's Theorem

**Eric Van Vlack**, Chemistry, '13 (Frantz Folmer-Andersen, Chemistry)  
Covalent equilibria of acylhydrazone formation

**Kathleen Westervelt**, pre-Chemistry, '15 (Pamela St. John, Chemistry)  
The interactions of DNA in the presence of CTAB



## *Fall 2012 AYURE Award Recipients*

**Dylan Lewis**, Anthropology, '13 (Lauren Meeker, Anthropology) Identity and Community among Ham Radio Operators

**Jena Goldberg**, Theatre Arts Design and Technology, '13 (Andrea Varga, Theatre Arts) Costume Design and Research for Beth Henley's *Crimes of the Heart*

**Nichole Amador**, Biology, '14 (Spencer Mass, Biology) Isolation and characterization of estrogen LBD sequences in planaria

**Lucia Milla**, Biology, '13 (Spencer Mass, Biology) Bisphenol-S: What are the effects of BPS on regeneration in planaria?

**Cody Saraceno**, Biology – Molecular/Cellular, '13 (Jeff Reinking, Biology) Ligand binding in human Liver X Receptors

**Joseph Kruk**, Biochemistry, '13 (Jason Valens, Biology) Archaea in Coral Reef Biofilms

**Kathleen Westervelt**, Chemistry, '15 and **Adam Rimawi**, Biology, '15 (Pamela St. John) Characterization of aggregates formed between oligonucleotides and surfactant

**Maria Ortiz**, Biology, '15 and **Francy Hernandez**, Biology, '14 (Maureen Morrow, Biology) Analysis of Ru compounds for synergistic Cytotoxicity

**Jessica Mason**, Biology / Chemistry, '13 (Jason Valens, Biology) DNA Sequence Analysis of Cultured Marine Bacteria

## *Spring 2013 AYURE Award Recipients*

**Tina Guerin**, Psychology/Sociology, '13, **Rami Ismail**, Psychology, '14 and **Emma Scott**, Psychology/Women's Studies, '13, (Maryalice Citera, Psychology) Theses and Dissertations, Oh My: The Role of Anticipatory Emotions

**Barbara Cady**, Women's Studies, '14 (Benjamin Junge, Anthropology) "Margaret Mead's field photographs as a lens to 20th-century trends in Anthropology"

**Juliana Hedeman**, Anthropology, '13 (Benjamin Junge, Anthropology) "Using photography as an ethnographic research tool: The legacies of Margaret Mead"

**Evan C. Hulick**, Political Sciences, '13 (Jeff Miller, Political Science and International Relations) On the Struggle Between Environmental Conservation and Democracy

**Roberto LoBianco**, Political Science & Journalism, '13 (Jeff Miller, Political Science and International Relations) Information and Democracy in a Global Age

**Josette Ramnani**, Political Science/Black Studies, '13 (Jeff Miller, Political Science and International Relations) Self-Recognition and Autonomous Deliberation: Mitigating Political Exclusion

**Minna George**, Biology, '13 (Maureen Morrow, Biology and Hon Ho, Biology) Analysis of antibacterial activity of a new fungus

**Maria Ortiz**, Biology, '15 and **Francy Hernandez**, Biochemistry, '14 (Maureen Morrow, Biology and Daniel Freedman, Chemistry) Analysis of the differential toxicity of Ru compounds

**Jonathan Buckmaster**, Theatre Arts/Psychology, '13 (Andrea Varga, Theatre Arts) "From Direction to Design: Making words come to life on the stage for a New Play Festival"

**Miriam Ward**, History & Digital Media Production/French, '15 (Michael Vargas, History) Visualizing a Medieval Career: Jean Gerson, Scholar-Regent-Diplomat

## *Student Travel Award Recipients*

**Sarath Manuel** (Psychology, '13/ SURE 2012) Presenter at the 53rd Annual Psychonomic Society Meeting in Minneapolis, MN

**Kathleen Westervelt** (Chemistry, '15/ SURE 2012) Presenter at the Biophysical Society 57th meeting in Philadelphia, PA

**Evan Hulick**, Political Science, '13, **Robert LoBianco**, Political Science & Journalism, '13 and **Josette Ramnani**, Political Science/Black Studies, '13 Presenters at the 2013 Annual Meeting of the New England Political Science Association in Portland, ME

**Brianna Murphy**, Visual Arts, '13 and **Daniel Sangiacomo**, Ceramics, '13, Presenters at the National Council on Education of the Ceramic Arts in Houston, TX

**Jena Goldberg**, Theatre Arts, '13, Presenter at the U.S. Institute for Theatre Technology 53<sup>rd</sup> Annual Conference and Stage Expo in Milwaukee, WI

**Miriam Ward**, History, '15, Presenter at the CUNY Graduate Center in NYC

**Elizabeth Koza**, History, '13, Presenter at the Association for Spanish and Portuguese Historical Studies Conference in Albuquerque, NM

**Elizabeth Sacchi**, Psychology, '13, Presenter at the 25<sup>th</sup> Annual Association for Psychological Science Conference in Washington, DC

**Nichole Amador**, Biology, '14 and **Lucia Milla**, Biology, '13, Presenters at the Northeast Regional Meeting of the Society for Developmental Biology in Woods hole, MA

**Genevieve Bozek** '13, **Adam Harrison** '14 and **Brittany Martel** '15 represented SUNY New Paltz by performing at the American College Theatre Festival in Hyannis, MA



Students accepted for the National Conference on Undergraduate Research- University of Wisconsin-LaCrosse. **Elizabeth Koza** (History/Midieval/Early Modern Studies), **Anastasia Psaras** (Linguistics), **Kathleen Brousseau** (Art History), **Lani Nelson** (Asian Studies), **Francy Hernandez** (Biochemistry), Front row: **Maria Ortiz** (Biology), **Remy LeDily** (Communication Disorders). Not pictured: **Miriam Ward** (History & Digital Media Production/French), and **Chen Zhou** (Linguistics)

## *Student Documentaries*

Students will discuss and show recent documentaries produced as class projects. Documentaries will take place in the M42 room located in the Library from 4:15 to 6:15pm.

4:15pm

### **Son Down Before Sundown:**

An examination of gun violence in Newburgh and Poughkeepsie--its causes and why there seems to be no tenable solutions on the horizon. Produced, Directed, and Edited by Katelyn Jones (Digital Media Production), Chris Sarmiento (Digital Media Production), and Ben Golden (Digital Media Production).

4:45pm

### **Shelf Life:**

A discussion of micro-brewed beer in the Northeast US. Produced, Directed, and Edited by Josh Rosman (Digital Media Production/Business), Kim Mas (Digital Media Production/Sociology), and Eric Chanin (Digital Media Production/Business).

5:15pm

### **From the Ground Up:**

A look at the recent changes in Greenwich Village and how the local community has been impacted by gentrification and the loss of local identity. Produced, Directed, Edited and Graphics by Clark Slater (Digital Media Production), Samantha Lobo (Communication and Media), Eric Sowalskie (Communication and Media).

5:45pm

### **CQ CQ...Who's Your Elmer?**

This film explores a range of activities of the amateur radio operator, from day-to-day communication to vital participation in emergency communications. Produced, Directed, and Edited by Dylan Lewis (Anthropology).

***Notes:***