Summer Undergraduate Research Experience Presentations

September 9, 2009
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The SUNY New Paltz Research, Scholarship and Creative Activities program
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Maureen Morrow, RSCA Director
SUNY New Paltz strives to enhance students’ intellectual growth through links to faculty scholarship. One mechanism for encouraging these links is the Summer Undergraduate Research Experience (SURE). This program encourages on-going faculty-student collaboration by enabling students to work full-time on a project over an 8-week summer period. SURE students work on a particular aspect of the faculty’s research program under close guidance by the faculty mentors.

The 2009 SURE students are asked present the results of their research to the community on this day. It has been my great pleasure to work with these students and their faculty mentors this past summer. Their enthusiasm and dedication are an inspiration. I would like to congratulate these student and faculty SURE alumni for their accomplishments and wish them luck with their continued efforts on these projects. Thank you for participating in this celebration of their achievements.

Maureen Morrow
RSCA Director

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. Congratulations to all of this year’s award recipients (see pages 12-13).

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 (AYRE) 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.
2009 SURE Presentations Schedule

10:45a
Introductions

11:00a
Alison Stevens, BFA Photography Major, 2010 (James Fossett, Art)
Changes: A Series of Short Stop Motion Animations and Video.

11:20a
Morgan Anderson, Sociology/Spanish, 2010 (Eve Waltermaurer, Sociology)
A Historical Content Analysis of Fiction Media's Portrayal of Violence

11:40a
Darian Pucciarelli, Sociology and Political Science, 2010 (Sunita Bose, Sociology)
Violence against women in India: The role of female status and community norms

12:00p
Victoria Nichols, Anthropology, 2010 (Kenneth C. Nystrom, Anthropology)
Dental health of an early 19th century skeletal sample from Newburgh, New York.

12:20p
Michael Pianka, Geography, December 2009 (Jo Margaret Mano, Geography)
Mapping with GIS at the Micro-scale: Historic Huguenot Street

12:40p
Kenneth Deegan, Geography, 2010 (John I. Sharp, Geography)
Reporting Truth Claims at the Metropolitan Scale: Public Stadium Financing and Economic Development

1:00p
Hope Mary Mahon, History, 2010 (Katherine L. French, History)
Material Culture and Servant-Employer Relations in Late-Medieval London

Posters will be on display from 10:30a-1:30p

Michael Wengen, Chemistry, 2011 (Megan Ferguson, Chemistry)
Structure and function of a yellow pigment produced by host-independent Bdellovibrio bacteriovorus

David Gorovoy, Biology, 2010 (Aaron Haselton, Biology & Preeti Dhar, Chemistry)
Investigation into the repellent activities of oxygenated alpha-Pinene derivatives against the house fly, Musca domestica
**CHANGES: A SERIES OF SHORT STOP MOTION ANIMATIONS**

**Alison Stevens** (Photography, undergraduate)
Faculty Mentor: James Fossett (Art)

Eadweard Muybridge is considered to be one of the founding fathers of cinematography. During the late 1800’s Muybridge began studying human and animal motion. He produced 8 to 9,000 linear sequences of images within a ten-year time span just 15 years after the creation of photography. At this time photography was hardly considered an art form but an extension of science used for the purposes of documentation. Muybridge’s intent was to freeze human and animal movements so artists would be able to study motion and accurately render it in their own works of art. During his studies, Muybridge improved upon shutter speeds, making them faster, in order to capture split second frames producing clear images of progressive movement. The purpose of my work is to take Muybridge’s sequential images and re-animate them into a series of short videos, ranging from 2-8 minutes each. The group Cave Dogs will also incorporate these videos as part of an inter-media performance entitled ‘Unknown Certainties’. Production of these videos consists of selecting and editing out the original backgrounds from Muybridge’s images and re-incorporating them into high definition backgrounds with original music. All of these elements of editing combine to take an old art form and update it with modern technology to create new meaning and purpose. These videos will be submitted to national and international film festivals as the final step of this research.

**CONTENT ANALYSIS OF MEDIA’S PORTRAYAL OF VIOLENCE**

**Morgan Anderson** (Sociology, undergraduate)
Faculty Mentor: Eve Waltermaurer (Sociology)

In the last few decades, there has been an increase in fear, among parents, of stranger danger violence committed against their children. One explanation researchers have examined is the media. However, despite the overwhelming amount of research that has been devoted to examining crime and violence in the media, many specific questions remain unanswered. For example, most research has focused on the amount and nature of violence in the media yet we still lack a longitudinal perspective on how portrayals of violence have changed over time, particularly violence committed against specific groups. Therefore, the purpose of this exploratory study is to examine how the extent and nature of violence against children as portrayed in television and film has changed over the past thirty years in the United States. By using keyword searches on the International Movie Database (IMDb), synopses of film and television shows from the past thirty years were subjected to a content analysis to gather a historical perspective. After examining the synopses, several patterns were revealed, including evidence that violent portrayals have become more direct than they were in the past, an increase in portrayals of events based on true stories, and a pattern of violent crimes such as child abductions being replaced with themes of domestic violence over time.
DOMESTIC VIOLENCE IN INDIA: THE QUESTION OF STATUS

Darian Pucciarelli (Sociology, undergraduate)
Faculty Mentor: Sunita Bose (Sociology)

Violence against women by an intimate male partner is a global health concern and causes many adverse effects for female victims including physical trauma, mental illness, miscarriage, and even death. Feminist literature suggests that intimate partner violence is a result of patriarchy, and is used as a way for men to gain power over women. The purpose of this research is to study a highly patriarchal society, India, and determine whether wife-beating is impacted by the relative power of women versus men in a marital relationship. Data in this study was drawn from the 1998-99 National Family Health Survey, a nationally representative survey of ever-married women 15-49 years, conducted in India. The results showed that for all variables measuring status differential, a difference in status either increased a woman’s likelihood of being beaten or was non-significant. Moreover, two indicators of women’s status, education and norms about wife-beating were negatively associated with the likelihood of violence. Among the control variables, husband’s education was found to be negatively associated with domestic violence. Standard of living was also found to have a very significant impact on violence, and women with low standards of living were found to be nearly twice as likely to be beaten than women with high standards of living.

DENTAL HEALTH OF A 19TH CENTURY SKELETAL SAMPLE

Victoria Nichols (Anthropology, undergraduate)
Faculty Mentor: Kenneth C. Nystrom (Anthropology)

In 2008, while renovating the Broadway School in Newburgh, New York, a 19th century African American cemetery was re-discovered. Archaeological excavations identified a total of 114 individuals. Of the 99 skeletons analyzed in the laboratory, 56 adults and 14 subadults possessed observable permanent dentition. The goal of the current project was to reconstruct the dental health of this population through the collection of frequency data on caries and linear enamel hypoplasias. Eighty-nine percent of all adult individuals had at least one caries (91% of males and 85% of females) with an average of 9.05 caries per individual. Fourteen percent of the subadult sample had at least one caries. Twenty-eight individuals, or 40% of the population, expressed at least one LEH on their anterior dentition, which is lower than in other contemporaneous African American populations. In comparison to the 18th century remains from the New York City African Burial Ground these results indicate that while caries frequency increased through time, childhood stress may have been lower. These contrasting results may be explained in part by differences in diet and environmental setting.
MICRO-SCALE GIS MAPPING: HISTORIC HUGUENOT STREET

Michael Pianka (Geography, undergraduate)
Faculty Mentor: Dr. Jo Margaret Mano (Geography)

Geographic Information Systems (GIS) are an effective tool for organizing and managing spatial data, though few GIS applications have been employed at a very detailed level, or micro-scale. The purpose of this study was to develop methodologies for handling the issues inherent in utilizing GIS at this scale. This pilot project investigated methodologies for creating the database infrastructure and established procedures for digitizing past archaeological excavations conducted on Historic Huguenot Street. Datasets from public sources, such as the NYS GIS Clearinghouse, and analog data collected by the SUNY New Paltz Anthropology Department were used to create a base map of the Huguenot Street site using ArcGIS software. Because ArcGIS was found to be inappropriate for documenting the 2x2 m archaeological excavation units at this scale, their diagrams and profile sketches were digitized using AutoCAD software, which permits mapping objects as small as pottery fragments. The related database was created using Microsoft Excel to classify and document 8 previously excavated archaeological units. The results of this pilot study are a base map of excavated plots on the Historic Huguenot Street site, with a sample of these units documented in a related database of archaeological data. It demonstrated the use of a combination of ArcGIS and AutoCad software to address the documentation of these surveys at this detailed micro-scale.

URBAN ECONOMIC DISCOURSE: SPORTS SUBSIDIES

Kenneth Deegan (Geography, undergraduate)
Faculty Mentor: John I. Sharp (Geography)

The construction of a new generation of publicly funded stadiums, beginning in the 1990s, was urged by professional sports teams who made claims that their older stadiums were economically obsolete, yielding insufficient revenues to keep pace with rising costs. Major League Baseball offers a case study regarding the economic discourse surrounding these stadium projects and the referendums that were necessary for approval of public spending. Four cities are used in this study: San Diego, St. Paul, Pittsburgh, and Houston. On balance, economists suggest that the economic impact of the stadium projects on the public entity is insignificant, if at all positive. This research will examine the economic claims presented through the media to potential voters. A content analysis will be performed using the most circulated newspaper in each of the four cities. The economic claims put forth in the discourse will be quantified and a quantitative analysis will demonstrate who the actors are that drive the discourse in the newspapers; keeping track of the total number of citations and coding responses as “pro”, “con”, or “neutral”. Furthermore, a qualitative analysis will identify the major frames of the issue as they appear in the text. Given the questionable economic returns from such projects, we are looking to see how the newspaper discourse surrounding the topic works to shape the public’s knowledge of the subject and influence the voting results on the referendums.
THE LIVING CONDITIONS OF SERVANTS IN LONDON

Hope Mahon (History, undergraduate)  
Faculty Mentor: Katherine L. French (History Department)

Working servants in the fifteenth century, in London, represent an under documented group. Servants are associated with crime, and are a crucial link to medieval London’s stability. Scholars estimate one third to half the population in London are servants. Servant’s material culture is thus an important topic to study. This research aims to evaluate the material culture of servants in London. This allows us to understand what servants are given by their masters and what this says about master-servant relationships. My primary sources come from the Perogative court at Canterbury. After transcribing these inventories, I separated out rooms where evidence of sleep existed. These measures allowed me to organize where servants slept, and what goods they had in these spaces. The inventories I evaluate show how each household differed in providing for a servant. Each is different in its allocation of goods to servants. It is clear from court proceedings that masters possess authority, and are held responsible for a servant’s actions. Prior authorship on servants provides evidence on how servants challenged their masters. By comparing master-servant relationships with the relationships of parents and youth, this dynamic becomes clearer. Master-servant relationships are similar to a relationship between an adolescent and parent, as hinted at, by Hanawalt.

ALPHA PINENE DERIVATIVES REPELLENCY ON HOUSE FLIES

David Gorovoy (Biology/Chemistry, undergraduate)  
Faculty Mentor: Dr. Aaron Haselton, Dr. Preeti Dhar (Biology/Chemistry)

Finding safe alternative repellants to the house fly- Musca Domestica- is very important because this insect is a common vector to many infectious diseases. The current study investigated the relative repellency of several derivatives of known repellant Alpha Pinene, for their relative repellency. These derivatives included 2,3-Epoxypinene, Pinen-3-one, and Pinen-3-ol. A behavioral bioassay chamber was used in order to ascertain the relative repellencies of these compounds to the control, 95% ethanol. All derivatives were tested at 29% concentration. A total of 10 male and 10 female trials, each with 20 flies, were run for each compound. The cumulative results are 9 flies (pinene oxide) vs. 13 (ethanol) for males and 14 (pinene oxide) vs. 25 (ethanol) for females, 7 (pinenol) vs. 10 for males and 7 (pinenol) vs. 8 for females, 6 (pinenone) vs. 11 for males and 7 (pinenol) vs. 8 for females. In conclusion, at a concentration of 29%, 2,3-Epoxypinene, Pinen-3-one, and Pinen-3-ol are much less repellant than Alpha Pinene.
**PROPERTIES OF A COMPOUND IN HI B. BACTERIOVORUS**

Michael Wengen (Chemistry, undergraduate)
Faculty Mentor: Megan Ferguson (Chemistry)

*Bdellovibrio bacteriovorus* is a Gram-negative bacterium known for its predatory characteristics towards other Gram-negative bacterium, while being harmless to Gram-positive and eukaryotic cells. This makes *B. bacteriovorus* a potentially useful antibiotic in industry, agriculture and medicine. However, under certain circumstances the host-dependent (HD) *B. bacteriovorus* changes into a less useful host-independent (HI) form. The purpose of this research was to complete the structural determination and understand the role of a yellow compound unique to the membrane of HI *B. bacteriovorus*. In order to work with the yellow compound, it was extracted from HI *B. bacteriovorus* by the use of acetone, purified via thin layer chromatography, and then analyzed by direct exposure mass spectrometry (DEP-MS) to confirm its presence. Infrared (IR) analysis was done in order to look for functional groups. NMR spectroscopy was used to help assign functional groups, and to obtain data that described the arrangement of molecules throughout the compound. A colorimetric assay was done using chrome azurol S and HDTMA in order to determine if the compound chelates iron. The IR and NMR analyses provided clear and reproducible data that supported the presence of at least one carbonyl group, most likely a carboxylic acid. The colorimetric assay implied that the compound in *B. bacteriovorus* chelates iron. While the structure was not completed, useful NMR data is still being interpreted.
2008 SURE Award Recipients

Heather Slivko-Bathurst, Anthropology, 2010
Evaluation of the Impact of Modern Anthropogenic Lead on the Reconstruction of Prehistoric Mobility  Mentor: Kenneth C. Nystrom, Anthropology

Chelsea Hull, Chemistry, 2009
Thermodynamics of single stranded oligonucleotide folding  Mentor: Pamela St. John, Chemistry

Ellice Litwak, Sociology, 2009
The Science Of Sexual Reorientation: A Textual Analysis Of Reparative Therapy Within The “Ex-Gay” Movement  Mentor: Karl Bryant, Sociology

Jordan Sumliner, Chemistry, 2010
Synthesis of Ruthenium Complexes of Chiral -diketiminate Ligands for Asymmetric Transfer Hydrogenation Reactions  Mentor: Daniel Freedman, Chemistry

Giovanna Deluca, May 2010
Synthesis and antimicrobial activity of skeletally modified alpha pinene derivatives  Mentor: Preeti Dhar Chemistry

Jannett Dinsmore, Biology, 2009
Glucose tolerance in young and old wild-type and insulin-like peptide compromised Drosophila melanogaster  Mentor: Aaron Haselton, Biology

Arsalan Aslam, Biology, 2010
Production of a thermostable amylase  Mentor: Maureen Morrow, Biology

Evan Pilnick, Geology, 2009
Stratigraphy of the Oatka Creek/Mount Marion Formations in Central and Eastern New York State: implications for hydrocarbon sources and traps within the Middle Devonian of eastern New York  Mentor: Alex Bartholomew, Geology

Corbin Neuhause, Linguistics, 2009
Patterns in Semantic Drift Across Word Classes : A Comparison of Mandarin Chinese and Japanese Morphemes  Mentor: Margaret Wade Lewis, Linguistics

Denise Donatien-Coder, Psychology, 2009
The Effect of Non-Adjacent Letter Combinations on Letter Identification  Mentor: Giordana Grossi, Psychology

Ryan Vinson, Physics, 2009
Non-Invasive Measurement of Bioelectric Currents with a Vibrating Probe  Richard Halpern, Physics

Kathryn Hall, Black Studies & Linguistics, 2009
Worldview & Educational Experience: Assessing the Impact of Alternative Worldviews.  Mentor: Karanja Carroll, Black Studies

Tonya Pasternak, Chemistry, 2009
Characterizing membrane-bound biosurfactants produced by Pseudomonas putida grown in the presence of polycyclic aromatic hydrocarbons  Mentor: Megan Ferguson, Chemistry

David Jakim, Environmental Geochemical Sciences, 2009
Revealing Biodiversity: Modeling rare plant occurrences in the Hudson River Valley, NY using GIS  Mentor: Lawrence A. McGlinn Geography
Spring 2009 AYURE Award Recipients

Denise Townsend, Theatre Arts 2009
Women In Dance: Leaders or Followers?
Mentor: Yoav Kaddar, Theatre Arts Department: Dance and Movement

Adrianna Mesquita, Anthropology 2009
New Horizons of Participatory Democracy in Porto Alegre: A Fall From Grace or Just Getting Real?
Mentor: Benjamin Junge, Anthropology

Anna Lange, Psychobiology / Chemistry 2009
Effects of Interviewee Nonverbal Behavior on Interviewer Perceptions and Decisions
Mentor: Douglas C. Maynard, Psychology

Viola Silvan, Psychology 2009
The Effects of a Belief in Determinism and Divine Omnipotence on Prosocial Behavior
Mentor: Douglas Maynard, Psychology

Rachael Carmen, Psychology/ Evolutionary Studies/ History 2009
Humor Styles and Mate Selection
Mentor: Corwin Senko, Psychology

Sean Wilson, Psychology 2009
Students’ achievement goals and study strategies
Mentor: Corwin Senko, Psychology

Shyam Prajapati, Biology 2009
Melanogenesis stimulation in murine B16 melanoma cells by extracts from Psoralea corylifolia and Heracleum maximum seeds
Mentor: Maureen Morrow and Preeti Dhar, Biology and Chemistry

Ingrid Walfish, Chemistry 2010
Tyrosinase stimulatory activity of Psoralea corylifolia and Heracleum maximum extracts
Mentor: Preeti Dhar, Maureen Morrow, Chemistry, Biology

Maria Rodolis, Chemistry 2010
Synthesis of monobactams and their corresponding sulfonyl chlorides
Mentor: Preeti Dhar, Chemistry

Christopher A. Cahn, Biology 2009
Cloning, Purification and “Adoption” of Nuclear Receptors from Ciona intestinalis
Mentor: Jeffrey L. Reinking, Biology

Amanda DeCotes, Biology Major / Chemistry Minor 2010
Identifying proteins that interact with Hug1
Mentor: Jennifer Waldo, Biology

Hana Akimoto, Biology major, Anthropology minor 2010
Investigating the effect of X-ray radiation on ancient DNA
Mentor: Jennifer Waldo and Ken Nystrom, Biology and Anthropology

Rachael Brandt, Theatre Arts 2012
Assistant Directing Blood Wedding
Mentor: Anita Gonzalez, Theatre Arts
Fall 2008 AYURE Award Recipients

Ingrid Walfish (Chemistry, 2010) and Alisha Philip (Chemistry, 2009)
Fractionation of Psoralea corylifolia and Heracleum maximum ethanolic extracts and Isolation and characterization of the toxic factor(s)  Mentor: Preeti Dhar, Chemistry

Sarah Wolfe (Psychology, 2009)
How Mastery-Oriented Students Sabotage Their Own Performance: A Laboratory Investigation  Mentor: Corwin Senko, Psychology

Amanda DeCotes (Biology, 2010)
Identifying proteins that interact with Hug1  Mentor: Jennifer Waldo, Biology

Emily Anne Korona (Anthropology, 2009)
Internet Activism: The Implications of Online Social Justice Mobilization at the 2008 World Social Forum  Mentor: Benjamin Junge, Anthropology

Christina J. Hartwell (Geology, 2009)
Paleontology of the Stony Hollow Member of the Union Springs Formation (Middle Devonian, latest Eifelian) in Eastern New York State  Mentor: Alex Bartholomew, Geology

Evan Pilnick (Geology, 2009)
Stratigraphy of the Oatka Creek/Mount Marion Formations in Central and Eastern New York State: implications for hydrocarbon sources and traps within the Middle Devonian of eastern New York  Mentor: Alex Bartholomew, Geology

Thomas Schramm (Geology, 2009)
Stratigraphy of the Middle Devonian Hamilton Group in the Skunnemunk-Green Pont Outlier in Southeastern New York State  Mentor: Alex Bartholomew, Geology

Joshua Simons (Political Science, 2008)
Left Behind: Law and (Some) Lawyers in the Bush Administration  Mentor: Nancy Kassop Political Science and International Relations

Brent Miller (Sociology, 2008)
Assessment of a Web-based Youth Risk Survey  Mentor: Eve Waltermaurer Sociology

Hana Akimoto (Biology, 2010)
Investigating the effect of X-ray radiation on DNA  Mentor: Jennifer Waldo, Biology, Ken Nystrom, Anthropology

Rachel Moreau (Psychology, 2008)
Effects of Interviewee Nonverbal Behavior on Interviewer Perceptions and Decisions  Mentor: Douglas C. Maynard, Psychology

Sanjana Reddy (Biology, 2011)
Quantitation of the cytotoxic effect of Ruthenium complexes on cancer cell lines.  Mentor: Maureen Morrow, Biology, Dan Freedman, Chemistry

Melissa Mandel (Printmaking, 2009)
Affordable, Storable, (& Sustainable) Papermaking Unit  Mentor: Jill Parisi, Art

Denni Catalano (Biology, 2008)
Identification of Bacteria Isolated from Pacific Coral Reef Live Rock  Mentor: Jason Valens, Biology
**Student Travel Award Recipients**

Denise Donatien-Code, Psychology, Annual APS Convention, San Francisco, CA  
Viola Silvan, Psychology, Conference in Religion and Spirituality, Columbia, MD  
Jannet Dinsmore, Biology, Entomology Society of America- Eastern Branch Meeting, Harrisburg, PA  
Evan Pilnick, Geology, Northeastern Geological Society of America, Portland, ME  
Joshua Simons, Political Science, Western Political Science Association Annual Conference, Vancouver, Canada  
Denise Townsend, Theater Arts, American College Dance Festival Association Northeast Conference, College Park, PA  
Thomas Schram, Geology, Joint Meeting of the Geological Societies of America, Houston, TX  
Christina Hartwell, Geology, Joint Meeting of the Geological Societies of America, Houston, TX  
David Jakim, Environmental Geochemical Sciences, Association of American Geographers, Middle-States Division Annual Meeting, Millersville, PA  
Giovanna Deluca, Chemistry, American Chemical Society National Meeting, Philadelphia, PA  
Chelsea Hill, Chemistry, American Chemical Society National Meeting, Philadelphia, PA  
Elice Litwak, Sociology, Eastern Sociological Society Conference, Baltimore, MD  
Emily Korona, Anthropology, World Social Forum, Belem, Brazil

National Conference on Undergraduate Research, La Crosse, WI; Giovanna Deluca, Chemistry,  
Sanjana Reddy, Biology, Elizabeth Lewis, History, Evan Pilnick, Geology, Christopher Gahn,  
Geology, Christina Hartwell, Geology