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Sponsored by:
The SUNY New Paltz Research, Scholarship and Creative Activities Program
For more information, please visit our web page: http://www.newpaltz.edu/research/usr.html
You may also contact: Maureen Morrow, RSCA Director
morrowm@newpaltz.edu 257-3776

Upcoming deadlines for the RSCA program sponsored events and funding:
Fall 2015 AYURE: September 3, 2015
Posters on the Hill: November 4, 2015
National Conference on Undergraduate Research: December 2, 2015
Spring 15 AYURE: December 3, 2015
SURE 2015: March 31, 2016
SRS Abstracts: April 7, 2016
Faculty Mentor Award: April 14, 2016

Join the SUNY New Paltz RSCA group on Facebook:
SUNY New Paltz Undergraduate Research, Scholarship
and Creative Activities Group
http://www.facebook.com/group.php?gid=44644830786

Editor: Maureen Morrow, RSCA Director
Cover Design: Michelle Pielli, RSCA secretary
Cover Photograph: Morgan Gwenwald
Welcome and congratulations to all of the SURE participants!

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) program. This program encourages ongoing 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 2015 SURE students are given the opportunity to present the results of their research to the community during the fall semester. 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 the student and mentor SURE Alumni for their accomplishments and wish them luck with their continued efforts on these projects. Thanks to everyone who has joined us today in this celebration of the SURE achievements.

Maureen Morrow
RSCA Director

2015 RSCA Mentor Award

Spencer Mass (Biology) was chosen for his extensive and productive mentoring efforts. With his guidance, students have regularly presented at regional, national, and international conferences. Mass fosters an open learning environment where students can ask questions, learn techniques and become fully involved in research. Rather than simply looking at the experimental results and stating what steps need to be taken next, he asks the student to suggest. Hannah Miller (Biology, ‘15) explained that his “research students are encouraged to take initiative and work independently, but are always able to go to him for brainstorming, advice, or a troubleshooting session”.
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. SURE and AYURE awardees are also eligible for the RSCA Conference Travel Award. Congratulations to all of this year’s award recipients (see pages 12-17).

SURE (Summer Undergraduate Research Experience)
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 29 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. Because the goal of this program is to encourage ongoing faculty-student collaboration, the students are encouraged to continue working on the project during subsequent semesters.

AYURE (Academic Year Undergraduate Research Experience)
The AYURE program as well as the SURE program, also supports student-faculty collaborations on projects that span the disciplines. Projects that generate new knowledge or works are eligible for support. During the semester, students typically spend approximately 10 hours per week on AYURE projects. Funds for supplies and other support of the research, scholarship or creative activities are provided through this program.

URETA (Undergraduate Research Experience Travel Award)
The RSCA program supports SURE and AYURE students to present the results of their collaborative work at professional conferences. Mentors are also supported for travel with the student.

STA (Student Travel Award)
The RSCA program provides travel funding to students who have not participated in AYURE or SURE to present the results of their collaborative work at professional conference.

Acknowledgements
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The RSCA Advisory Board:
Michael Chuang (Business), Gregory Bynum (Educational Studies),
Vicki Tromanhauser (English), Jo McInnis (Library), Ekatarine Shemyakova (Mathematics), Maria Montserrat Gimeno (Music), Roberto Velez-Velez (Sociology),
Maureen Morrow (RSCA Director, Biology)
2015 SURE Presentation Schedule

Wednesday, September 9th

5:00pm Introductions

5:10pm, Bethany O’Hara, Biology, ’17 (Mentor: Maureen Morrow, Biology)
Characterization of an Antifungal Metabolite

5:30pm, Maddie-Blair Wright, Biology, ’16 (Mentor: Aaron Haselton, Biology)
Challenging Invasion: An Investigation of the Success of the Invasive Paper Wasp, Polistes dominulus, and its Native Counterpart, Polistes fuscatus, in Different Habitats Within the Mohonk Preserve

5:50pm, Josh Johnikutty, Biology/Chemistry, ’17 (Mentor: Spencer Mass, Biology)
Further Investigation of the Actin Cytoskeleton of Regenerating Planaria Exposed to Xenoestrogens

6:10pm, Meredith Eldridge, Biology/Psych/Creative Writing, ’16 (Mentor: Spencer Mass, Biology)
Comparative Kinematics of Gait, Breathing and Feeding in Ambystomoid Salamanders

6:30pm, Ryan Baker-Urzua, Environmental Geochemical Science (Biology), ’16 (Mentor: Eric Keeling, Biology)
Effects of Prescribed Fire on Ecophysiology, Germination, and Relative Abundance of Chestnut Oak Seedlings at Mohonk Preserve, NY

6:50pm, Jared Flagler, Geography, ’16 (Mentor: Huicheng Chien, Geography)
Combining Air Temperature and Streamflow to Estimate Stream Water Temperature

7:10pm, Bryan Krebs, Biology Concentration Organismal/Environmental, ’15
(Mentor: David Richardson, Biology)
Ecological Communities in the Sky Lakes: Zooplankton Diversity, Size and Ingestion Rates

Tuesday, September 15th

9:00am Introductions

9:10am, Ari Pignatelli, Mechanical Engineering, ’17 (Mentor: Kevin T. Shanley, Electrical, Mechanical, & Computer Engineering)
Numerical Analysis of Air Infiltration/Exfiltration Through Automated Sliding Doors on A Commercial Low-Rise Building During A Single Door Opening Event

8:30am, Olivia Seirup, Mathematics (minor: Deaf Studies), ’16 (Mentor: Francis Valiquette, Department of Mathematics)
Two-Dimensional Discrete Euclidean Invariant Variational Problems

9:50am, Christian Zoeger Boggiano, Mechanical Engineering (Business), ’17 (Mentor: Jared W. Nelson, Computer Engineering)
Use of Digital Image Correlation to Reduce Material Testing Requirements for Carbon Fiber Reinforced Plastic Qualification

10:10am, Dante Peluso, Electrical Engineering, ’16 (Mentor: Reena Dahle, Electrical, Mechanical, & Computer Engineering)
The Use of 3D Printing to Design an Increased Bandwidth Microstrip Patch Antenna

10:30am, Paulina Lustgarten, Sociology, ’16 (Mentor: Scott LeVine, Geography)
Establishing Preference Structures for Automated Vehicles’ Novel Traffic-Operations Regimes

10:50am, Megan Doty, Graphic Design BFA, French BA, ’16 (Mentor: Amy Papaelias, Art Department)
Designing Digital Scholarship: Print and Web Design Explorations for a Special Issue of Visible Language Journal
Isolation and Identification of Isaria Antifungal Metabolite

Bethany O’Hara (Biology)
Faculty Mentor: Maureen Morrow (Biology)

Isaria fumosorosea is a fungus that is known for its entomopathogenic attributes. We have isolated a strain of this fungus that produces a metabolite with antifungal properties. This antifungal metabolite is secreted by the fungus, and we have determined that it is active against a variety of fungal species. Antifungal activity is quantified through the metabolite’s ability to inhibit the growth of fungal spores. This research is geared towards the characterization, isolation, and identification of the metabolite. Initially, we are working to determine the molecular make-up of the metabolite; is it a protein or is it non-protein? Various concentrations of metabolite were added to fungal spores and the minimal concentration of metabolite needed to effectively stop spore growth was recorded as the Minimal Inhibitory Concentration (MIC) value. We treated the metabolite with high temperatures, Proteinase K, sunlight, and size separation with centrifugal filtration and examined the effect on the MIC values. Additionally, we performed Polyacrylamide Protein Gel Electrophoresis to examine protein content. The apparent small size, light sensitivity, heat tolerance, and incomplete Proteinase K inactivation imply that the metabolite may be a non-protein or peptide metabolite. Further analysis is required before determining a purification protocol.


Maddie-Blair Wright (Biology)
Faculty Mentor: Aaron Haselton (Biology)

The invasive European Paper Wasp, Polistes dominulus, has expanded its range across North America since its initial discovery in Massachusetts in the late 1970’s. Evidence suggests that this invasive wasp is displacing the native paper wasp, Polistes fuscatus throughout much of this range. In this study, we surveyed the populations of both paper wasp species within the greater New Paltz area. Specific attention was given to the prevalence of each species in areas that represented low, medium, and high levels of human disturbance as well as the quality of surrounding vegetation. The overall goal of this study is to determine if a correlation exists between P. dominulus invasion success and human activities.
Investigating the Effect of BPA on the Actin Cytoskeleton

Josh Johnikutty (Biology)
Faculty Mentor: Spencer Mass (Biology)

The effect of the xenoestrogen bisphenol-A (BPA) on the actin cytoskeleton of regenerating planaria was studied. Previous experiments in our lab have shown that BPA delays and disrupts regeneration and disrupts the microtubule cytoskeleton. This experiment involved exposing transected planaria tails which were regenerating their heads to a 10µM BPA solution with appropriate controls (water and DMSO which served as our solvent control). The worms were demucoused, permeabilized, fixed, and bleached on day 3 of regeneration. The specimens were stained using fluorescently labeled phalloidin, a fungal toxin which irreversibly binds to filamentous actin. The specimens were imaged using confocal microscopy and the resulting images were analyzed using FIJI, an open source image processing package based on NIH Image J. Preliminary results indicate that BPA is disrupting actin organization. This is consistent with our prior studies.

Comparative Kinematics of Gait in Ambystomoid Salamanders

Meredith Eldridge (Biology)
Faculty Mentor: Spencer Mass (Biology)

Axolotls (Ambystoma mexicanum) are neotenic salamanders that do not typically complete metamorphosis and remain aquatic when they reach sexual maturity; however, some axolotls may spontaneously complete metamorphosis. Tiger salamanders are non-neotenic terrestrial salamanders that normally complete metamorphosis and are within the same genus (Ambystoma) as axolotls. This study investigates the kinematics or motion analysis of the salamander gait cycle in order to compare neotenic and non-neotenic movement during walking. By digitizing the movements of these salamanders during their gait cycle with slow-motion video, the motion and position of specific body parts were tracked, measured, and compared.
Fire effects on Ecophysiology of Chestnut Oak and Red Maple Seedlings

Ryan Baker-Urzua (Environmental Geochemical Science (Biology))
Faculty Mentor: Eric Keeling (Biology)

Fire-suppression in the eastern US has caused a shift in forest composition from oak tree dominance to more moisture-loving “mesophytic” species, such as red maple. Chestnut oak forest communities are rare, generally restricted to ridgelines growing in well-drained soils. Chestnut oaks provide acorns, fast-decaying leaves, and a more open canopy which allows diffuse light to reach the understory to support a productive and diverse ecosystem. Mohonk Preserve has instituted a prescribed fire program to restore chestnut oak forests. I sampled chestnut oak and red maple seedlings both within and outside of a 2014 prescribed burn area and asked the question: Do chestnut oak and red maple seedlings both acclimate physiologically to post-burn light conditions? I used the LICOR 6400 Photosynthesis System to measure gas exchange (photosynthesis and respiration rates) and collected leaves for leaf morphology measurements (leaf area, mass, thickness, and stomatal density). Both species showed evidence of acclimation to high light in the burn area (higher photosynthesis and respiration rates, higher light compensation points, thicker leaves, greater stomatal density, and lower leaf area per mass). Differences in germination and survival in the field are other possible drivers for differences in seedling abundance in burned and unburned areas. These findings will provide valuable information to inform management strategies designed to the restore chestnut oak forests in Mohonk Preserve and throughout eastern United States.

The Relative Importance of Variables to Predict Stream Water Temperature

Jared Flagler (Geography)
Faculty Mentor: Huicheng Chien (Geography)

Stream water temperature is a critical variable in regulating distributions of aquatic species and controlling the release of in-stream sediment-attached nutrients. Air temperature is a well-known predictor of stream temperature. However, the importance of streamflow in predicting the stream water temperature is not clear. The primary objectives of this study are to measure stream water temperature and air temperature and examine the importance of streamflow in stream water temperature prediction. The measured stream water temperature and air temperature will be used to test two hypotheses: 1) streamflow in a smaller drainage area is a more important factor than air temperature in regulating water temperature, and 2) by combining air temperature and streamflow data stream water temperature can be more accurately estimated. Water and air data loggers are placed at USGS streamgage stations 01362357 and 01362370, along the Stony Clove and Esopus Creeks in Phoenicia, New York. The data is then analyzed using the ARIMA (autoregressive integrated moving average) time series model. Both hypotheses are rejected, as streamflow is not a significant variable in predicting stream water temperature at both USGS gauge stations. Daily mean air temperature is the only significant variable in predicting stream water temperature at this scale.
Zooplankton Communities Pre- and Post-Minnows in Lake Minnewaska

Bryan Krebs (Biology) Angela Chen (Environmental Geochemical Science)
Matthew Farragher (Environmental Geochemical Science) Bobbetta Davis (Biology)
Faculty Mentor: David Richardson (Biology)

Lake Minnewaska, located along the Shawangunk Ridge in Ulster County New York, has transitioned from a clear blue lake to a more opaque green lake. The introduction of a minnow fish species, Golden Shiner (Notemigonus Crysoleucas), in 2008 and a piscivorous fish species, Micropterus Salmoides, in 2012 has caused a trophic cascade in the lake. N. Crysoleucas feeds on the zooplankton that in turn feeds on the phytoplankton in the lake. We hypothesize that shifts in phytoplankton biomass is the mechanism behind the transition in lake color from blue to green. We had two objectives for this study: 1) to determine changes in fish population size over time and 2) to determine how the zooplankton community has changed since the loss of N. Crysoleucas. Fish population size as well as zooplankton individual size was collected over the past three summers in Lake Minnewaska. Samples were collected at neighboring Lake Awosting and Mohonk Lake to serve as year to year comparisons. Over the first two years sampled, N. crysoleucas populations went from an estimate of 15,000 in 2013 to zero in 2014 as N. crysoleucas was neither captured nor observed in the lake. The extirpation of N. crysoleucas was likely due to predation by M. salmoides as evidenced by the increase in M. salmoides average body length and 60% increase in population size. The resulting effect on the zooplankton community was an increase in individual size after the extirpation of N. crysoleucas from 2013 to 2014. We hypothesize that there will be no change in zooplankton size from 2014 to 2015.

Groundwater Flow Modeling to Assess the Impact of Groundwater on Stream Bank Erosion at Stony Clove Creek

Sarah Sansone and Sawyer McFadden (both Environmental Geochemical Science)
Faculty Mentor: Shafiul Chowdhury

Ashokan Reservoir in the Catskill Mountains, New York, has been experiencing an increase in turbidity, which is affecting water quality. The Stony Clove Creek has been identified as the primary contributor of these sediments. The turbidity problem can be attributed to the failing slopes along the banks of the Espous Creek, and other tributaries. While increasing frequency of severe storms is a factor it is not the single cause. Localized morphology and stream patterns has lead areas of high ground water pressure. These zones of groundwater convergence create failures along the banks of the river. These banks consist of glacially derived clay material, which is the source of the suspended solids and geologic mapping was used to identify areas critical to the study. These areas are particularly prone to failure in high precipitation events because of the pre-existing ground water pressure.A groundwater flow model has been created for an active failing site along the bank of Warner creek, a tributary of Stony Clove creek to simulate these groundwater convergence zones. We identified three different layers of glacially derived sediments along these banks. We utilized field surveying data as an input to makes these layers in the Visual Modflow software. Hydraulic conductivity values for the different layers of sediments were calculated in the lab using a constant head permeameter. We ran the model after assigning the appropriate boundary conditions. The modeling output calibration will be performed using hydraulic head data in the piezometers that were installed in the site.
Numerical Analysis of Air Infiltration/Exfiltration through Automated Sliding Doors on a Commercial Low-rise Building During a Single Door Opening Event

Ari Pignatelli (Mechanical Engineering)
Faculty Mentor: Kevin Shanley (Mechanical Engineering)

The energy consumption of a building can be dictated by the airflow in and around its volume. Analysis of the air exchange that occurs during a single door-opening event is important in understanding the energy that is consumed in the structure. The purpose of the research is to monitor parameters of interest (such as temperature and pressure) that affect a building’s energy at varying wind conditions. These parameters are monitored at the doors that lead into the structure. Computational Fluid Dynamics (CFD) can be used in order to analyze the air flow in or around the domain of interest. CFD uses numerical methods that approximate the equations that govern fluid flow. An open source computer software, OpenFOAM, was used to analyze air flow. This software was used to create a mesh surrounding the domain of the structure. A mesh is a representation of the structure’s geometry that is made up of smaller regions of cells. Fluid flow is then solved for over these smaller regions. Wind was then simulated towards the building using the OpenFOAM software. The wind was simulated at velocities varying from 3mph to 15mph, in addition to directions of 30°, 60°, 120°, and 150°. Values for pressure and flow rate were collected from these simulations. This data was compared to that of a previously analyzed empirical model by colleagues in Mississippi State University, and were found to be relatively close in value.

The Discrete Equi-Affine Invariant Euler-Lagrange Equations

Olivia Seirup (Mathematics)
Faculty Mentor: Francis Valiquette (Mathematics)

The Euler-Lagrange equations play a fundamental role in theoretical physics, chemistry, engineering and mathematics. In my presentation I will explain how to derive the Euler-Lagrange equation of an arbitrary discrete qui-affine invariant Lagrangian. This is done using the theory of equivariant moving frames.
Digital Image Correlation to find properties of composites

Christian Zoeger (Mechanical Engineering)
Faculty Mentor: Jared Nelson (Electrical, Mechanical and Computer Engineering)

Composite materials are increasingly being used in various fields including the use of carbon fiber reinforced plastics in the aircraft industry. They are replacing other materials because they have specific properties that can be tailored to maximize the overall structural properties. To be sure that the composite materials are appropriate for the product or structure, tests to find the material properties are of major importance. This research used Digital Image Correlation (DIC) to most effectively measure strain to reduce the amount of testing required in establishing material properties. The result of seven notched coupons of IM7 carbon fiber/RS8 Bismaleimide (BMI) laminates with the same stacking sequence are presented. The coupons were tested in tension in a standard load frame. Testing notched samples is important because they simulate worst case defects on the structure. With the use of a high resolution camera, images of the coupon were manually captured as the load was applied. These images were later analyzed using DIC to determine the strain. Stress was found by recording the load for each image and finding the cross-sectional area of the respective coupon. Once stress and strain were calculated the material properties were found and compared to published values for un-notched specimen. The results indicate that DIC may effectively be used to quantify defect and material properties at the same time.

Design of a Microstrip Patch Antenna with 3D-Printed Substrate

Dante Peluso (Electrical Engineering)
Faculty Mentor: Reena Dahle (Electrical and Computer Engineering)

Microstrip patch antennas (MPAs) have seen a huge increase in popularity and demand since the 1950’s. They are widely used in devices and applications such as cell phones, vehicular communication and medical technology. Their relatively small size and cheap cost exceed that of many of the other antenna types available. A MPA consists of the metal patch, the ground plane, the dielectric substrate in between the two, and the SMA connector, which serves as the input connector to the device. Materials that exhibit what radio-frequency (RF) engineers call dielectric properties, like the dielectric constant \( \varepsilon_r \), are used as a substrate such as polystyrene and other plastic-like substances. However, these materials are known for their poor efficiency and low bandwidth (range of operational frequencies). To combat these issues, researchers have found several methods to enhancing the MPA bandwidth. These include introducing an air gap within the substrate lowers the dielectric constant (since \( \varepsilon_r = 1 \) for air and \( \varepsilon_r \) is mostly greater than that for substrate materials), as well as introducing a honeycomb-like series of cylindrical shaped holes within the substrate, and by increasing the thickness of the substrate. The goal of this project was to use the flexibility of 3D printing and realize wideband antennas by introducing an air gap into two 3D printed MPA designs, the quarter-wave and the inset fed antenna, using ABS plus as the dielectric material. With the time and resources available, the project has yielded satisfactory results in hardware testing for the quarter-wave embedded on every type of substrate listed, showing improvement in bandwidth as expected.
Travel Preferences in 2015

Paulina Lustgarten (Geography)
Faculty Mentor: Scott LeVine (Geography)

Transportation enables the economic and social interactions that underpin contemporary life. Since the start of the decade, automakers (and non-traditional manufacturers: Google, Apple, etc.) have begun developing commercially-viable vehicle systems that provide high degrees of automation (i.e. removing the human “driver” from real-time vehicle control). This emergence of “Automated Vehicles” (AVs) presents novel challenges to urban planners and sociologists, among others. This study’s objective is to generate empirical data to help understand how AVs will impact the use of cars and other forms of transportation, through a stated-preference survey distributed to 200 respondents (statistically representative of the US adult population). The results, based on Logistic Regression analysis of the empirical dataset, establish people’s preferences regarding both classical attributes (travel times and costs) and novel ones (semi- and full-automation). It is our hope that the study’s findings will serve as a useful reference for urban planners as AVs become an increasingly large portion of the nation’s 250 million road vehicles.

Designing Scholarship: Explorations in the Digital Era

Megan Doty (Graphic Design, French)
Factory Mentor: Amy Papaelias (Graphic Design)

With the advent of the digital era rendering possible a niche within which scholarship could thrive, many opportunities have yet to be explored. Designing Digital Scholarship aims to envision how the future of academic scholarship may take form on the web. Print is not the future of academia. But the prestige of being published in print is among the most prominent of reasons that it remains favored. A shift in ideology, begging an epistemological investigation into the possibilities of using the web as a primary medium for publishing scholarly work, could result in a wider spread of information, as well as an augmentation in divergent approaches to how knowledge is conveyed. Digital scholarship can advance the reach of materials and ameliorate accessibility across devices. Envisioning digital scholarship, the academic design journal, Visible Language, was used to inform direction. Style tiles lent to the definition of the journal’s personality, followed by mockups and then HTML and CSS. Additionally, data visualization was explored through using Voyant, Serendipomatic, RAW, Adobe Illustrator, and Javascript. Exploration has resulted in a functioning prototype demonstrating scholarship on the web, achieving digitally what the medium of print inherently falls short accomplishing. This research into digital scholarship shows the possibility for the web to maintain the prestige of print scholarship, advance methods in conveying information, as well as increase access to materials.
2014 SURE Award Recipients

Jake Carias, Sociology, ’15 (Mentor: Benjamin Junge, Anthropology)
Generational Differences: Monogamy, Marriage, and Sexual Norms Within the Gay/Bisexual Community

Briana Dabroski, BFA Sculpture, ’15 (Mentor: Emily Puthoff, Art)
STEM to STEAM Curriculum / Tinkering and Making with Accessible Technology

Izabella Mlynarska, Biology, ’15, and Josh Johnikutty, Biology, ’17
(Mentor: Spencer Mass, Biology)
Does BPA alter the regenerating planarian nervous system

Emily Rouse, Biochemistry, ’14 (Mentors: Jeffrey Reinking, Biology and Spencer Mass, Biology)
Investigating cross-reactivity of compounds that effect both ion-channels and human Estrogen Receptor

Valerie Stanson, Biology/Black Studies, ’15 (Mentor: David Richardson, Biology)
The mystery unveiled: Effects of ecosystem wide changes in Lake Minnewaska on the rare deep water bryophyte, *Sphagnum trinitense*

Adam Noach, Chemistry, ’16 (Mentor: Frantz Folmer-Andersen, Chemistry)
Synthesis of new BINOL-containing macrocycles for enantiomeric discrimination

Jeffrey Babicz, Chemistry ACS, ’14 (Mentor: Michael Machczynski, Chemistry)
NMR Investigation of Laccase Catalysis

Brandon Bera, Environmental Geochemical Science, ’16
(Mentor: Kevin Shanley, Elect. & Comp. Engineering)
An Open Source Approach to Numerical Simulations of Fluid Flow through Rock Fractures with Application to Large Scale Advanced Geothermal Energy Systems

Alexandra Hobby, Mathematics (Physics), ’15 (Mentor: David Hobby, Mathematics)
Continued fractions with common tails

Ali Immel, Mathematics, ’15 (Mentor: Francis Valiquette, Mathematics)
Numerical Investigation of the Group Foliation Method

Ana Bennet, Psychology, ’15 (Mentor: Navin Viswanathan, Psychology)
The interaction between phonetic and speaker information in speech

Christina Covington, Psychology, ’14 (Mentor: Maryalice Citera, Psychology)
Evidence Based Medicine: Validating the Multi Systemic Infectious Diseases Syndrome (MSIDS) Questionnaire
Fall 2014 AYURE Award Recipients

Ronald Aucapina, Biology, ‘16
(Mentor: Megan Ferguson, Chemistry)
Predicting Adhesion between AFM Cantilevers and Bacterial Surfaces

Jessica Gallagher, English/Secondary English Education, ’15
(Mentor: Julie Gorlewski, Secondary Education)
Revealing the Hidden Curriculum: Teacher Voices in an Era of Standardized Reform

Nicholas Golom, Biology, ‘15
(Mentor: Jason Valens, Biology)
Optimization of FISH for Visualization of Microbes within a Marine Biofilm

Josh Johnikutty, Biology/Chemistry, ‘17
(Mentor: Spencer Mass, Biology)
An Examination of the Actin Cytoskeleton in Planaria Exposed to BPA

Kimberly Lane, Biology, ‘15
(Mentor: Maureen Morrow, Biology)
Caspase Activation by Ru Based Compounds

Jennifer McGreevey, Journalism/ Evolutionary Studies/ Philosophy, ‘14
(Mentor: Victor DeMunck, Anthropology)
Is Romantic Love a Cultural Universal? A Cross Cultural Analysis

Izabela Mlynarska, Biology/Evolutionary Studies, ‘15
(Mentor: Spencer Mass, Biology)
Further Investigation of Microtubules in Planaria Exposed to BPA

Joseph Ruotolo, Mathematics, ’15
(Mentor: Diego Dominici, Mathematics)
Analysis of Wireless Power Transmission from a Tesla Coil

Dylan Sheppard, Art/Computer Science, ‘16
(Mentor: Bryan Czibesz, Art)
Experiments in Wearable 3D Printing: Processes, Materials, and Desktop Manufacturing

James Tompkins, Physics, ‘16
(Mentor: Pamela St. John, Chemistry)
Force Microscopy of Mixed SAM Surfaces and DNA Aggregates

Stevie White, Biology, ’15, and Velisha Guillaume, Biology, 15
(Mentors: Maureen Morrow, Biology, Frantz Folmer-Anderson, Chemistry)
Purification and characterization of an Antifungal Metabolite
Spring 2015 AYURE Award Recipients

Joseph Dunstan, Chemistry, ‘17  
(Mentor: Frantz Folmer-Anderson, Chemistry)  
Elaboration of BINOL by Electrophilic Aromatic Substitution

Joseph Ruotolo, Mathematics, ’15  
(Mentor: Diego Dominici, Mathematics)  
High Voltage Measurement Techniques Applied to a Tesla Coil

Euin Cheong, Cell/Molecular Biology, ’16  
(Mentor: Hon Ho, Biology)  
The Effect of Fungicides on the Growth, Sporulation and Sexual Reproduction of Phytophthora capsici

Ewa Danisewicz, Biology, ’15 and Zachary Thom, Biology/History, ‘16  
(Mentor: Spencer Mass, Biology)  
Determination of LC50 in Planaria for BPA and BPS with and without Tamoxifen

Valerie Stanson, Biology, ’15 and Bryan Krebs, Biology, ‘15  
(Mentor: David Richardson, Biology)  
Linking Dynamics of Lake Minnewaska Across Seasons

Sean Hill, Mathematics, ‘15  
(Mentor: Ekaterina Shemyakova, Mathematics)  
Supersymmetric Extension of Laplace Transformations

Shay O’Leary, Psychology/Psychobiology, ‘15  
(Mentor: Sarah Shuwairi, Psychology)  
Young Children’s Conceptual Understanding of Objects (Assessment of Categorical Knowledge)

Julie Planke, Psychology/Psychobiology, ‘16  
(Mentor: Sarah Shuwairi, Psychology)  
Young Children’s Understanding of Real and Depicted Objects (Assessment of 2D-3D Perception)

(Mentor: Francis Valiquette, Mathematics)  
Equivalence of Linear Second-Order Finite Difference Operators
2014-15 URETA Recipients

*Recipients of the Undergraduate Research Experience Travel Award (URETA)*
-conference travel funding provided to students who participated in AYURE or SURE

**Erich Stern ’14** (Biology) Presented the results of his research at the Joint Aquatic Sciences Meeting in Portland, OR.

**Blair Dawson ‘14** (Psychology/Disaster Studies) Traveled to the International Conference on Motivation in Helsinki, Finland, to present her research.

**Michael Carey ‘14** (Biochemistry) Presented the results of his research at the Frontiers in Metallobiochemistry III in State College, PA.

**Ana Bennett ’15** (Psychology) Traveled to Long Beach, CA, to present her research for the Psychonomics Society 55th Annual Meeting.

**Izabela Mlynarska ‘15** (Biology/Evolutionary Studies) Presented her research at The Society for Intergrative and Comparative Biology in West Palm Beach, FL.

**Ronald Aucapina ‘16** (Psychology/Disaster Studies) Traveled to the 59th Annual Biophysical Society Meeting in Baltimore, MD, to present his research.

**Elizabeth Reid ’14** (Theatre Arts) Presented her research at the USITT and Stage Expo in Fortworth, TX.

**Julie Planke ’16 and Shay O’Leary ’15** (both Psychology/ Psychobiology) Presented their research at the 27th Annual Association for Psychological Science Convention in NYC.

**Michael Facelle ’15** (Computer Engineering/Astronomy) Traveled to Montreal, Canada, to present his research at the 2015 CASI Acronautics Conference and AGM.
**Student Travel Award (STA) Recipients**

**Recipients of the Student Travel Award (STA)**
-conference travel funding provided to students who have not participated in AYURE or SURE

Caitlyn Maceli '15 (Environmental Geochemical Science) and Valerie Stanson ‘15, (Biology/Black Studies) Traveled to Portland, OR, to present their research at the Joint Aquatic Sciences Meeting.

Jeffery Babicz ’14 (Chemistry) Presented his research at the Frontiers in Metalllobiochemistry III in State College, PA.

Ilana Heckler ‘15 (Chemistry) Presented her research at the Annual Meeting of the America Society of Pharmacognosy in Oxford, PA.

Catherine Attanasio ’15 (Psychology) Traveled to Long Beach, CA to present her research for the Psychonomics Society 55th Annual Meeting.

Ariel Pignatelli ’17 (Mechanical Engineering) Traveled to Lincoln, NE, to present her research at the Conference for Undergraduate Women in Mathematics.

Juliana Wintrop ’15 (Sociology/Asain Studies) Presented her research at the Eastern Sociological Society Conference in NYC.

Julian Mostachetti ’15 (Political Science/History) Traveled to Plattsburgh, NY, to present his research at the NYS Political Science Association 2015 Annual Convention.

Sophia Apkarian, ’15 (Sociology) Presented her research at the 2015 Left Forem in NYC.

Theresa Orr ‘17, Connor Milton ’15, Adam Gloc ’15 and Danielle Strassman ’15 (Music) all traveled and presented their research at the Summer Music Performance Program at Anatolia College in Thessaloniki, Greece.

Ryan Kropas ’15 (Physics/Astronomy) Traveled to Oswego, NY to present his research at the Regional Society of Physics Students Meeting (RSPS).

Izabella Mlynarska ’15 (Biology/Evolutionary Studies) Presented her research at the Northeast Regional Meeting of the Society of Developmental Biology in Woods Hole, MA.
NCUR

Six New Paltz students were accepted to present the results of their faculty mentored research projects at the National Conference on Undergraduate Research (NCUR) at Eastern Washington University. The conference was held April 16-18, 2015. NCUR is very competitive and New Paltz students had a 100 percent acceptance rate!

- **Christopher Hoffmann '15**, Asian Studies (mentor: Oksana Laleko, Linguistics)  
  The Effects of English Loanwords in Japanese on Semantic Overextension in English L1s
- **Anna Lattanzio '14**, Communication Disorders (mentor: Oksana Laleko, Linguistics)  
  Overt/Null Comprehension in Heritage and Second Language Learners of Russian
- **Ali Matthews '16**, Education/Spanish (mentor: Oksana Laleko, Linguistics)  
  Past Tense Morphology Formation in Bilingual Spanish Heritage Speakers and L2 Learners of Spanish
- **Ari Pignatelli '17**, Electrical Engineering (mentor: Anca Radulescu, Mathematics)  
  Complex Dynamics for Symbolic Sequences of Quadratic Maps
- **Julian Mostachetti '15**, History/Political Science (mentor: Jeff Miller, Political Science)  
  Inexorable Doom: The State of the State of Exception
- **Sophia Apkarian '15**, Sociology (mentor: Irwin Sperber, Sociology)  
  The Power Elite

SURC

Eleven New Paltz students presented the results of their faculty mentored research projects at the first annual SUNY Undergraduate Research Conference (SURC) at SUNY Brockport. The conference was held on April 10, 2015. [http://digitalcommons.brockport.edu/surc/](http://digitalcommons.brockport.edu/surc/)

(from left to right)

Laura Kopeczynski '15, Psychology, Emily Smith '15, Psychology, Julie Planke '16, Psychology, Velisha Guillaume '15, Biology, Shay O’Leary '15, Psychology, Jessica Gallagher '15, Education, Anne E. O’Brien '15, Physics, Gabrielle Bouissou '15, Music Therapy, Julia Wintrob '15, Sociology  
(not pictured - Ryan Kropas '15, Physics and Emily Sobel '15, Physics)