Undergraduate Research Scholar Award
Previous Recipients

2017-2018

Micaela Bottari, Vocal Performance (WCA)
*La Chanson d’Eve: Two Old Men, une femme, and a Semblance of Paradise*
Advisor: Eric Hung, Department of Music Composition, History, and Theory

The existing scholarship on Gabriel Fauré consists mainly of traditional musicological methodologies, which include score analysis and biographical work. The following proposal will explore how more recent approaches to musicology, such as gender and disability studies, can be used to give Fauré’s late period a fresh perspective. Through analyzing one of his late period song cycles, *La Chanson d’Eve*, a work written after he lost most of his hearing, I hope to expand the existing narrative on Fauré’s writing during his last years. The project will culminate with a performance exploration of this cycle and an academic paper.

Gianluca D’Elia, Journalism (CLAS)
*Slavery in our State: Investigating New Jersey’s Role in Cross-Country Human Trafficking*
Advisor: Jackie Incollingo, Department of Communication and Journalism

A series of in-depth data articles, features and multimedia components will investigate New Jersey’s reputation as a hub for human trafficking and research how multiple disciplines — primarily social work, health and law enforcement — tackle this issue statewide. This project will involve the use of public records and interviews from authorities on this issue around the state, such as law enforcement, mental health professionals and leaders of nonprofit organizations. Looking at issues surrounding human trafficking through the context of investigative reporting may also provide an understanding of what role journalists can play in exposing and battling it.

You can find Gianluca’s work highlighted on his website: [http://gianlucadelia.wix.com/slaveryinourstate](http://gianlucadelia.wix.com/slaveryinourstate)

Eric Monticello, Management & Leadership, Entrepreneurial Studies & Marketing (CBA)
*Small Business Institute (SBI) Program Analysis*
Advisor: Ronald Cook, Department of Management

In this research study, I will be analyzing client outcomes from implementing student team consulting recommendations from projects done between 2000 and 2016. Through personal
interviews and surveys, I hope to learn what recommendations have been implemented, or are being implemented as well as the outcomes of these recommendations. This information can demonstrate the effectiveness of the student team consulting projects and show other businesses how the SBI program can help them start, grow and/or maintain economic success in their competitive environments. In addition, I can compare different types of consulting projects to see if certain types make more sense for student team consulting.

Samantha Ottavi, Biochemistry (CLAS)
_The synthesis and antibacterial effects of N-(2-(pyridin-2-yl)ethyl)sulfonamide derivatives_
Faculty Advisors: Danielle Jacobs, Department of Chemistry; Kelly Bidle, Department of Biology

N-(2-(pyridin-2-yl)ethyl)sulfonamides, or pyridine sulfonamides, are small molecules containing both pyridine and sulfonamide functional groups. Each of these functional groups are widely used in the pharmaceutical industry and putting them both on the same small molecule can create new ones with a wide variety of capabilities, notably the potential to inhibit the growth and prevent the survival of some bacteria. In this independent project I will be synthesizing N-(2-(pyridin-2-yl)ethyl)sulfonamide derivatives and testing their antibiotic potency on commonly encountered bacteria, such as _Escherichia coli_ and _Staphylococcus aureus_.

Alexandra Santora, Biology (CLAS)
_The Effects of Salt-Stress on Haloferax volcanii_
Faculty Advisor: Kelly Bidle, Department of Biology

Cysteine-aspartate specific proteases, or caspases, are enzymes that function to catalyze programmed cell-death in multi-cellular organisms. The Bidle lab examines caspase-like activity in the Archaea, a single-celled domain of life. This is of great interest, as it indicates an early evolutionary advantage for this activity in primitive life. Our on-going research indicates that _Haloferax volcanii_, a salt-loving archaeon that thrives in environments like the Dead Sea, exhibits high levels of caspase-specific activity and that this activity is enhanced by salt stress. Given the involvement of caspases in the cellular stress response in higher life, we plan to further examine how a variety of abiotic stressors in growing cultures of _H. volcanii_ affect caspase activity.

2016-2017

Johnathan Jackson, Health Care Management & Human Resource Management, CBA
_Impact of Population Characteristics on the Sustainability of Medicare_
Advisor: Anne Carroll, Associate Professor of Finance and Economics

The purpose of my research is to make a conclusion about the sustainability of the current Medicare system given an increasing population, particularly the “Baby Boomers” and “Gen X” generations. In this Research Project, I plan to explore the effects of increasing population in America on the total cost of providing Medicare given the current cost structure. As large population groups in the US move into the Medicare demographic we will see increased costs due to volume alone. Throughout country we are unsure about both the magnitude of this cost and whether or not our economy will bear those costs long-term. My research will investigate the relationship of the following circumstances and overall Medicare costs. As the working population shifts into the Medicare demographic, younger generations will be the taxpayers responsible for
funding their health insurance. I will make an assertion as to whether or not these generations will be able to support increasing Medicare costs. I will take into consideration projections regarding rate of the United States’ GDP, Medicare usage, and overall healthcare cost in determining my own cost projections of Medicare. This Research Project will use this information to overall make a conclusion as to whether or not Medicare under its current structure is sustainable over the next 10–15 years.

Elissa Lomakova, Biology, CLAES
Activation of T Cells Within the Tumor Microenvironment
Advisor: James Riggs, Professor of Biology

As America’s elderly population increases, and as aging is the main risk factor of cancer, development of novel cancer therapies will be essential (1). Activation of killer T cells to eliminate cancer cells within the immune suppressive tumor microenvironment (TME) is a challenge in current cancer research (2). Phytohemagglutinin (PHA), a molecule found in red kidney beans, can trigger T lymphocyte division. Evaluating the role of PHA in killer T cell activation within the TME is the primary goal of this research.

John Modica, English Literature, CLAES
Setting the Watchman: Unifying the Legacy of Harper Lee in High School Classrooms
Faculty Advisor: Matthew Goldie, Professor of English

This research project addresses the reception of Harper Lee’s Go Set a Watchman alongside To Kill a Mockingbird and its lack of integration within high school classrooms. A critical study will explore how academic understanding of Mockingbird in the last thirty years shaped contemporary interpretations of Watchman, and respond with my own critical analysis that will consider its suitability as a classroom companion to the first novel. The synthesis of my work will be an instructional guide for teachers utilizing Watchman as a compliment to Mockingbird that will further engage students on topics of racial injustice and legal ethics.

Mallory Murphy, Music Education, WCA
Finding a Home in Music: Culturally Responsive Teaching for Homeless Youth
Advisor: Donna Gallo, Assistant Professor of Music Education

For this research project, I will review research in the field of culturally responsive/relevant teaching while also conducting interviews of elementary-aged children housed at the HomeFront Family Campus in Ewing, NJ. The literature review and interview data will inform the development of a detailed culturally responsive music curriculum for after-school music programs at the shelter, and may be applicable to other shelters in the region. I plan to teach this curriculum at HomeFront during the summer 2016 term. Exit interviews following the implementation of the curriculum will help determine the effectiveness of my teaching in terms of cultural congruity.

Natalie Strucinski, Psychology, CLAES
Walk the Talk: Developing and Assessing Health Programming Designed to Change Both Attitudes and Behaviors in At-Risk Youth
Advisor: Stephanie Golski, Associate Professor of Psychology

Previously, a complicating dichotomy between the impact of health programming on attitudes and beliefs versus actual behaviors has been demonstrated. I propose to adapt and combine existing
health programming curricula involving content instruction, which addresses the internal dimension, or attitudes, with the principles of role-playing, which addresses the external dimension, or ability to self-regulate behavior, for topics critically related to the period of adolescence in local at-risk youth: nutrition, exercise, stress, safety, and substance use. To evaluate efficacy, a step often skipped in health programming, I will develop and implement tools to assess changes, if any, in, knowledge and behavior.

2015-2016

Camila Bermúdez, Theatre Performance and English, CLAES
Timberlake Wertenbaker’s The Love of the Nightingale: Transformation of the Philomele Myth to Drama and its Relevance to Violence on College Campuses Today
Advisor: Vanita Neelakanta, Associate Professor of English

The project focuses on the potential of drama to create public awareness of violence and effect change. Timberlake Wertenbaker’s The Love of the Nightingale reflects this didactic potential through the transformation of the classical myth of Philomele. I will explore Wertenbaker’s poetics of drama as a potential tool for social change in connection to violence against women on college campuses. I propose to write an article and stage a performance of the play. Informed by the research, the staging will illustrate through visual design, acting, and technology the potential of drama to address silenced acts of violence and effect change.

Katherine Caughlin, Music, WCA
Behind the Veil: An Investigation of the Misconceptions Surrounding Women Making Music in Arabic Cultures
Advisor: Samantha Bassler, Adjunct Assistant Professor of Music

This research project explores the role of women in Arabic music culture. The project begins with a critical study of perceptions and misconceptions of women in Arabic culture. The next section examines the role of women in private and public music making, highlighting particular women throughout Egyptian music’s history and present, in light of cultural tropes of women and their function in Arabic society. The methodology of this project will blend social and ethnographic research with musical analysis, and posits that women played a much more active role in musical life behind the veil than many are led to believe.

Andrew Jemas, Biochemistry, CLAES
Enhancing the Antibiotic and Biofilm Removing Properties of the Novel Deep Eutectic Solvent, Choline Geranate, With Respect to Staphylococcus aureus and other Gram-Positive Bacteria
Advisors: Danielle Jacobs, Associate Professor of Chemistry; Kelly Bidle, Professor of Biology

The novel deep eutectic solvent (DES), choline geranate, has previously been found to be an effective antimicrobial and biofilm removing agent for gram-negative bacteria. However, my preliminary research has shown that this DES is not as effective at killing the gram-positive bacterium Staphylococcus aureus. I propose that by replacing the cation, choline, in the DES with derivatives that are known to be antimicrobial towards Staphylococcus aureus and other gram-positive bacteria, I can enhance the compound’s antimicrobial and biofilm removing properties
across a wider range of pathogenic bacterial species.

**Natalie Taptykoff, Marketing and Advertising, CBA**  
*Exploring the current and future regulation of electronic cigarettes in the United States*  
Advisor: Cynthia Newman, Professor of Marketing

The purpose of my research is to explore the current rules regulating electronic cigarettes. With the increased popularity of electronic cigarettes and subsequent health concerns, the United States needs to implement new laws in order to properly regulate their usage, sales and advertising. Should electronic cigarettes have the same regulations as regular cigarettes? Are they considered medical devices in the market? As a result of the growing demand among teenagers, what advertising ethics should the distributors of electronic cigarettes adhere to? All of these questions and more will be addressed in my research.

**Elizabeth Urban, Biology, CLAES**  
*Expression Patterns of GDNF, ETV 4 and 5 and SPRY 1 in Xenopus laevis*  
Advisor: Julie Drawbridge, Professor of Biology

Pronephric duct development in amphibians is regulated through a specific signal transduction pathway. In mammals, GDNF is known to play a role in kidney development due to its position in the signal transduction pathway. It binds with a Ret co-receptor, and activates other signals including ETV 4/5, and SPRY 1, which contribute to duct cell migration. This project aims to determine when and where GDNF, ETV 4/5, and SPRY 1 are expressed in *Xenopus laevis* embryos. This will help to determine if there is an evolutionary relationship between mammals and amphibians in the development of the kidney system.

**2014-2015**

**Kelsey Carroll, Theatre Performance, WCA**  
*Shift: A Socially Aware and Devised Theatrical Exploration of the Universal Journey of Change through the Art of Listening*  
Advisor: Trent Blanton, Assistant Professor of Theatre

Through this project I will devise a new one-woman show that will speak to the issue of female mistreatment and address the universal topic of change. I will create this piece through collecting first-person interviews from women of all walks of life and then compiling a narrative of change, forgiveness and growth. I will also use movement and visual arts to help aid in the storytelling process. This study of transformation, creating new work, and enacting social change through the arts will culminate with a final performance, script, and article detailing my process, personal growth and change.

**Brandon Enalls, Biochemistry, CLAES**  
*Examination of caspase-like activity in diverse members of the Archaea*  
Advisor: Kelly Bidle, Professor of Biology

Cysteine-aspartate specific proteases, or caspases, are highly-specific enzymes that function to
catalyze programmed cell death (PCD) in higher organisms. Despite the lack of genetic homologs for these enzymes in organisms from the second major prokaryotic domain, the Archaea, caspase-like proteolytic activity has recently been detected in the haloarchaeon H. volcanii as well as a number of other diverse members of the Archaea. The proposed research aims to further investigate the extent of caspase-like activity in Archaea, particularly in response to high stress. It is anticipated our results will help to better elucidate the evolutionary emergence of these distinct proteins.

**Derek Lake, Finance & Accounting, CBA**  
*The Impact of Automation on the U.S. Labor Market*  
Advisor: Kelly Noonan, Professor of Economics

The purpose of my research is to explore the possible effects of automation/computerization on the labor market of the United States. Robotics and software companies are rapidly developing innovative technology which threatens the jobs of millions of Americans. Self-driving transportation vehicles, software algorithms, and automated farming equipment are just a few examples of technology threatening to replace American workers. There is as much incentive as ever for companies to automate business processes to maximize profits, therefore automation is inevitable. How will the government deal with impending layoffs? What niches can displaced American workers fill to find employment? And will rapid automation of jobs in the United States ultimately drive down demand for products due to an impoverished class? Each of these questions will be addressed in my research.

**Nicolette Mateescu, Psychology, CLAES**  
*Effect of Stimulus Valence and Familiarity on Wisconsin Card Sort Performance: Validity Assessment for Individuals with Intellectual Disabilities*  
Advisor: Michael Carlin, Associate Professor of Psychology

The Wisconsin Card Sorting Test (WCST) and two novel card sets will be used to assess effects of familiarity and valence on sorting in children with intellectual disabilities (ID). Accuracy and speed of sorting each card set by color, form, and numerosity will be assessed, as will the standard test administration assessing executive skills. It is expected that children with ID will perform better with the positive-valence card set. Results will advance understanding of the effects of environmental supports on performances of individuals with ID, and will have implications for valid assessment of executive skills in this population.

**Jessica Stanislawczyk, Voice Performance, WCA**  
*Understanding Westminster’s Role in the U.S. Cold War Foreign Policy: The State Department Tour of 1956-57*  
Advisor: Eric Hung, Associate Professor of Music History

The U.S. State Department sponsored tours for musicians, often jazz and avant-garde performers, to travel to several continents during the Cold War. Westminster Choir went on a six-month State Department Tour in 1956-57 to 22 counties, but this tour has not received much scholarly attention. This research project will explore how the tour fit into Westminster’s mission, examine the experiences of faculty, administration, and students on that tour, and investigate how Westminster could have aided U.S. foreign policy. This will be achieved through study of primary sources in the Westminster archives, secondary sources, and oral histories.
Amanda Bertram, Psychology, CCS  
“Factor Analysis of Expectations and Agreement with Steps 1-3 of a Twelve-Step Recovery Program”  
Advisor: Gary M. Brosvic, Professor of Psychology

This research project will assess how expectations effect participation in and personal conceptualizations of steps one through three of a Twelve Steps Recovery Program. Data will be collected from at least 200 active participants in Alcoholics Anonymous and Narcotics Anonymous using two primary survey instruments. Psychometric properties of both instruments and their convergent and discriminant validites will be determined through factor analyses and principal component analyses. Emphasis shall be placed on measuring participants’ agreement with the first three Steps and then on examining relationships between expectations, abstinence, and program participation.

Oleksandra Dorosheva, Biochemistry, CLAES  
“Determination of a Role for Gβγ in the Cell Cycle Progression in Human Cells”  
Advisor: Bryan Spiegelberg, Assistant Professor of Chemistry, Biochemistry and Physics

Control of the cell cycle by regulatory proteins is critical for organism' development and survival. Recent studies have shown that the signaling protein Gβγ is involved in the regulation of the mitotic spindle during mitosis in lower organism such as roundworm Caenorhabditis elegans. In the following project, cellular localization of Gβγ and physical association with the mitotic spindle as human cells undergo mitosis will be studied to investigate a role for Gβγ in the mammalian cell cycle. The resulting insight into the cell cycle may facilitate the understanding of the cell cycle dependent diseases such as cancer.

Louis A. Esposito, Fine Arts/Art Concentration, WCA  
“Body of Work: Work on the Body”  
Advisor: Deborah Rosenthal, Professor of Fine Arts

Controversial, perhaps provocative, but equally esteemed for their craft, the enigmatic paintings of the twentieth-century artist Balthus are the subject of this study. As a figure painter studying a master of the figure, I will try to understand the significance of Balthus’ narratives incorporating young female models. I will analyze his work through figure drawings and paintings of my own; I will also study artists who influenced him, and read some of the key texts about figure painting. I propose to create a group of figure drawings and paintings that result directly from my investigation of Balthus’ themes and process.

Sara Hartigan, Psychology and Law and Justice minor, CLAES  
“Sentiment in the Courtroom: Effects of Attorney Emotion During Closing Arguments on Juror Decision-Making”  
Advisor: Wendy P. Heath, Professor of Psychology

Jury decisions are the cornerstone of the justice system. Any biasing factor that can potentially impact a juror needs to be examined. The proposed study seeks to investigate the effects of attorney emotion during closing arguments on juror decision-making. Participants will view closing arguments from a prosecutor and a defense attorney (both portrayed by actors) during a
rape and robbery trial. Each attorney will either display a sad, angry, or unemotional demeanor. After viewing this video, participants will answer a questionnaire regarding defendant guilt and attorney credibility.

**Farzana Razack, Business Economics and Health Administration minor, CBA**

*"The Geographic Distribution of Physicians in the United States"*

Advisor: William Amadio, Professor of Information Systems and Supply Chain Management

The purpose of my research is to investigate the geographic distribution of physicians across the United States. Specifically, my research will focus on the distribution of physicians in rural areas because they tend to be under-served. The number of designated Health Professional Shortages Areas (HPSAs) or Medically Underserved Populations/Areas (MUA/Ps) per state will be considered when suggesting policies that will aim to evenly distribute primary care and specialty physicians. In addition, the current provisions of the Affordable Care Act (ACA) that seek to influence physician distribution will also be studied. Throughout the research, data from the United States Census Bureau and the National Plan and Provider Enumeration System (NPPES) will be used. Multiple regression models will examine how variables such as income, poverty, urbanicity, minority groups in the area, climate, and physician characteristics such as gender, training, and preferred lifestyle factors influence the physician per capita ratio.

**2012-2013**

**Jessica Canose, Spanish Language & Literature, CLAES**

*"Entangled in a Web of Hollywood Dreams: Unearthing the Subtext of Homosexuality in the Works of Manuel Puig"*

Advisor: Hernán Fontanet, Associate Professor of Spanish Language & Literature

This project is a continuation of an Honor’s contract—to be presented in two colloquiums—that explores how homosexual individuals are silenced during times of oppression, as portrayed in Manuel Puig’s iconic film, *El beso de la mujer araña (Kiss of the Spiderwoman)*. Continuing as my Spanish Senior thesis, I will examine the portrayal and psyche of the repressed homosexual individual in Latin America, by investigating the psychological methods of coping with social boundaries. I will primarily focus upon Puig’s escape strategy, wherein protagonists use Hollywood movies as their escape to fantasy, as they live vicariously through female movie stars.

**Allison Ingram, Environmental Sciences, CLAES**

*"Factors controlling growth rates of oaks, tulip poplars and beech, across George Washington’s Mount Vernon plantation in Virginia"*

Advisor: Dan Druckenbrod, Assistant Professor of Environmental Sciences

This study will use tree-ring measurements and GIS maps to examine relationships between growth rates and basal areas, and topographic wetness index (TWI) and aspect for oaks, poplars and beech across the property on George Washington’s Mount Vernon plantation. The objectives are to determine whether growth rates and basal areas across the site are influenced by TWI and aspect and if these species respond equally to a moisture gradient. This project expands on research I conducted since my freshman year at Rider and will lead to the completion of a
manuscript that I will submit to a peer-reviewed research journal.

**Thomas Vajtay, Biology, CLAES**

“Strain Specific Variation in the Innervation and Integration of the Optic Nerve in the Suprachiasmatic Nuclei of Mice”
Advisor: Todd Weber, Professor of Biology

The suprachiasmatic nuclei (SCN) in mammals acts as a “clock” that organizes physiology and behavior into circadian (i.e. daily) rhythms. The SCN are synchronized to daily light-dark cycles through direct input from the optic nerves, keeping animals active at appropriate times of the day. My project will examine innervation of the SCN in mice that do not show “jetlag” using histochemical techniques as well as examining light-induced gene expression in the SCN in order to better understand how the information from the eyes is integrated in the “clock”. Findings will provide insight into molecular mechanisms underlying jetlag in humans.

**Naomi Vernon, Musical Theatre major and Arts Administration minor, WCA**

“The Frozen Curtain: Expanding Arts Business in the Former Eastern Bloc”
Advisor: Todd Dellinger, Assistant Professor of Fine Arts

The aim of this study is to revive the arts in Eastern Europe. My research is closely related to Professor Todd Dellinger’s current project, “Arts in Transition: The Eastern Bloc.” My research will begin in summer 2012 in Germany, the Czech Republic, and Hungary and will focus on theatre and performing arts institutions. While my research assesses political, social, and economic transitions in the arts, it focuses on providing new roots for expansion of the arts in post-Cold War era Eastern Europe, and establishes an international connection through adaptation of American practices in arts business. The research is intended to be a foundation for a Fulbright Scholarship application.

**Michael Zubert, Music Education, WCA**

"Using Digital Audio Workstations to Enhance Learning in High School Music Education Classrooms"
Advisor: Janet Cape, Assistant Professor of Music Education

The objective of this research is to address the problem of resistance to technology among music educators. The study will focus on the use of GarageBand and Mixcraft software in High School music education classrooms to enhance the way in which music educators convey musical content to their students. I will develop a series of lessons using GarageBand and Mixcraft software to improve curricular content and will pilot the lessons in a six-week after-school program for High School students. Revised lesson plans will be integrated into an online resource for teachers.

**2011-2012**

**Brian Blanda, Economics, CBA**

“The Effects of United States Deficit and Debt on the Country’s GDP”
Advisor: Kelly Noonan, Professor of Economics
From December 2007 to October 2009, government deficits rose from $340.2 billion to $1.6 trillion, gross government debt rose 28% to reach $14.56 trillion, and GDP-to-debt ratio rose 20%. The purpose of this research is to understand the implications that the United States’ continuous federal deficit and debt have on the stability and growth of the nation’s GDP (Gross Domestic Product). Specifically, the research will focus on the inherent economic impact that exists with a federal deficit and debt. This will involve a historical analysis of United States’ federal deficit and debt. Given our findings, we have concluded that the percent of debt change has a negative effect on real GDP change. For every 1% increase in debt change, real GDP change decreases by 0.48%. Also we have consistent results with Reinhart and Rogoff that the debt/GDP ratio also has a negative effect on real GDP change once debt/GDP reaches above 90%. We have also concluded that, as well as debt change having a negative effect on real GDP change on its own, debt change is also an avenue which other economic factors can effect real GDP change. This research is meant to provide valid, contemporary data to be used in future policies in order to understand and properly correct the adverse effects of a country’s continuous federal deficit and debt.

Aubrey Maks, Music Education & Music Composition, History & Theory, WCA
“The Significance of Maori Culture in the World of Popular Music”
Advisor: Eric Hung, Associate Professor of Music Composition, History and Theory

Maks will examine popular Maori music and its relevance today. Her research will explore how Maori popular musicians use traditional Maori music, as well as how Maori popular music preserves its cultural history and identity.

Nicole Singer, Education & English, CLAES
“The Impact of Leadership Training on Pre-service Teachers: A One Year Study of Teacher Leadership”
Advisor: Kathleen Pierce, Associate Professor of Graduate Education

The purpose of this study was to examine the perceptions of teacher leadership within the education community, including beginning and experienced teachers as well as school administrators and university teacher educators. Grounded in literature about teaching, leadership, and school culture, the study surveyed local educators about their perceptions of teacher leadership. Responses to open-ended questions were analyzed and discussed in light of actual practice in schools and dominant themes in the data. The most prevalent theme was that leadership is extremely contextual depending on the role of the individual and climate of the school district and field of education. Findings from veteran teachers and school administrators suggest that “teacher leadership” needs a place to be practiced to be further developed. Beginning teachers report feeling underprepared as leaders entering the field but express interest and desire to learn how to lead. Another significant finding is the variation in opinions about teacher leadership and the feasibility of including teacher leadership in teacher preparation programs among teacher educators.

Jennifer Sorenson, History, CLAES
“Past Sufferings, Present Glories: Grassroots Neo-Nazi Extremism in the Russian Federation”
Advisor: Lucien Frary, Associate Professor of History

This research project examines the rise of the first wave (1985-1999) of neo-Nazism in Russia. Many people were very surprised by the emergence of a popular neo-Nazi movement in post-Soviet Russia because the Soviet Union defeated Nazi Germany in 1945, yet after the collapse of the Soviet Union in 1991, Russia became the home of almost half of the neo-Nazis in the world. Russia appeared to shift from far-left communism to far-right neo-Nazism almost overnight. However, this project challenges the notion that neo-Nazism in Russia is new and unprecedented. It argues that neo-fascist ideas, such as racial anti-Semitism and defensive ethnic nationalism, were quite popular under (and even before) the Soviet Union. The dissolution of the Soviet Union caused a mood of chaos and political instability which allowed such an extremist movement to proliferate. This project also sheds light on how important it is to understand and investigate neo-Nazi extremism, for it is a serious social force that will not just go away.

Amanda Walker, Biology, CLAES
“The Relationship of Intestinal Microbiota Composition to Immune Function in Wild-type and Immune Molecule Knockout Mouse Strains”
Advisors: James Riggs, Professor of Biology and Kelly Bidle, Associate Professor of Biology

Within the vertebrate gut lives a multitude of symbiotic bacteria that perform countless functions for their host in exchange for a stable environment to inhabit. Over the last several years, increasing data suggest that this gut microbiome plays a key role in immune function. Combining previous research with this new area of interest, Walker will examine the relationship between immune function and the vertebrate microbiome by investigating the characteristics of a normal microbiome as well as the effect of altered immune function on its composition.

2010-2011

Samantha Bennett and Victoria Capozzalo, Education and Mathematics, CLAES
“Effectively Teaching Mathematics in Suburban and Urban School Settings”
Advisor: Sylvia Bulgar, Professor of Teacher Education

Bennett and Capozzalo will explore the teaching strategies utilized in third- and fifth-grade classrooms in both urban and suburban schools. Both students will be observing at least one third- and fifth-grade classroom that follows the traditional method of teaching mathematics, which is drill and practice. A second set of classrooms will focus on learning mathematics through inquiry-based strategies and discovery learning.

Heather Chojnacki, Spanish & Global Multinational Studies, CLAES
“Cultural Limits: Challenges to Microfinance in the Southern Cone”
Advisor: Hernán Fontanet, Associate Professor of Spanish

Chojnacki will examine the challenges facing the microfinance industry in South America’s
Southern Cone in Argentina. She will focus on cultural challenges such as stereotypes and gender hierarchy rather than financial or political challenges, and will explore the role that culture plays in discouraging clients from borrowing and in preventing microfinance institutions from investing in that particular geographical region.

**Bonnie Cochran-Painter, Liberal Studies, CCS**

*"Is Breastfeeding a Class Issue"*

Advisor: Barry Truchil, Professor of Sociology

Cochran-Painter will examine the extent to which the decision to either breastfeed or use infant formula is influenced by the social class of the mother. The role of the infant formula industry, public health organizations and the federal government will also be analyzed in order to determine their impact on the decisions of mothers in different social classes.

**Ashley O’Brien, Biochemistry, CLAES**

*"The Effects of VEGF on Suppression in the Tumor Microenvironment"*

Advisor: James Riggs, Professor of Biology

Many patients with cancer express high levels of VEGF. VEGF is a chemical-signaling protein that promotes the growth of new blood vessels in the body, a process called angiogenesis, which allows the tumor to grow. Because there is an abundance of VEGF in patients with cancer, its receptors VEGFR-1 and VEGFR-2 are good targets for anti-cancer drugs. It has been suggested that anti-angiogenic drugs alone or in combination with chemotherapy may reduce metastasis, inhibit tumor growth, prolong survival and improve the quality of life of the patient. O’Brien will explore the effects of VEGF on suppression in a tumor microenvironment.

**Di Zhao, Voice Performance, WCC**

*“Allure of the Unattainable: Themes of Lost or Unrequited Love in Early 20th c. German Lieder and Chinese Folk Song”*

Advisor: Lindsey Christiansen, Professor of Piano and Voice

Zhao will analyze contrasting and recurrent themes of unrequited and lost love in the first half of the 20th century within two genres of music: German Lieder and Chinese folk song. Topics to be discussed involve influences of traditional and contemporary culture upon the portrayal of courtship and the search for love and how this manifests itself in the text or composition of a song through symbolism and stylistic attributes.

**2009-2010**

**Anthony Baron, Piano and Voice Performance, WCC**

*“Bel Canto Ornamentation Exhibited by Chopin and Bellini”*

Advisor: Stefan Young, Professor of Music Theory and Composition
Baron will attempt to show a definitive link that Chopin in fact incorporated elements of the Bellini Bel Canto Operatic style in his Piano Nocturne writing. He hopes to reveal this through the ornamental figures that Chopin applied to his melodic writing, and seeing if there are similar harmonic, rhythmic and intervallar elements that relate to why specific ornamental figures are being employed.

**Danielle Becker, Finance, CBA**

*“What's Next for the Rating Agencies”*

Advisor: Anne Carroll, Associate Professor of Finance

Becker plans to examine in detail the role that rating agencies and their risk models played in the recent financial crisis. In addition, she will explore the extent to which conflicts of interest between rating agencies and the firms whose securities they rate compounded the problem of agencies’ assignment of questionable ratings. She plans to investigate what is currently being done to prevent inaccurate ratings from happening again, and discuss proposal for regulatory oversight by experts in the field. Then she will suggest her own proposals for regulatory reform and provide her assessment of the future for the rating agencies.

**Robert Fisher, History, CLAES**

*“Gentleman Johnny’s Germans: Hessian Prisoners of War in the Convention Army, 1777-1783”*

Advisor: Brooke Hunter, Associate Professor of History

Fisher’s research will give long-overdue attention to the Hessian prisoners in the Convention Army and promises to make an important contribution to our understanding of the military and social history of the American Revolution.

**Zarif Islam, Economics and Political Science, CBA & CLAES**

*“Succeeding the Empire: A Historical Analysis of the Politics Economics of Ghana and Bangladesh”*

Advisors: Barbara Franz, Associate Professor of Political Science and Kelly Noonan, Professor of Economics

Islam, of Dhaka, Bangladesh, plans to visit Bangladesh and Ghana to compare and contrast the two post-colonial economies of the two countries. In particular, he will focus on the energy sector(s) and health and education. Furthermore, he aims to center his research on nations’ political stability, government transparency, changing gender roles, and the role of non-governmental organizations. His ultimate goal is to find what kind of economic and political programs are successful in order to create a reference point by which future programs can be planned.

**Michelle Orlowski, Biochemistry, CLAES**

*“Does Erythropoietin Contribute to the Suppression of Immunity within the Tumor Microenvironment”*

Advisor: James Riggs, Professor of Biology
Twenty years ago, erythropoietin (EPO), a hormone produced in the kidneys to increase red blood cell production, was cloned. EPO has been used ever since to treat cancer patients with the low red blood cell counts that are often triggered by the toxicity of their treatment regimens. However, some recent studies have shown that EPO might promote tumor growth. Orlowski will work in Dr. James Riggs’ laboratory, where a tumor microenvironment has been reproduced. There she hopes to determine if EPO impacts lymphocyte function within this suppressive environment.

2008-2009

Brittany Baxter, Biology, CLAES
“A Two-Hit Model of Parkinson’s Disease”
Advisor: Jonathan Karp, Professor of Biology and Behavioral Neuroscience

Baxter’s goal is to examine the possibility that a subclinical bacteria infection will increase susceptibility of mice to a neurotoxic agent known to cause Parkinson’s disease-like changes in brain chemistry and behavior in mice.

Tara Riccelli, Music Education and Voice Performance, WCC
“The Nuclear Family in American Opera and Situational Comedy”
Advisor: Eric Hung, Assistant Professor of Music Composition, History and Theory

Riccelli proposes to study how 20th century American operas and musicals responded to the ideal of the white middle class suburban family as portrayed in television situational comedies of the 1940’s –1970’s. She will examine the idea that operas often subvert and comment upon television’s idealized suburban family image.

Maria Seuﬀert, Music, CLAES
“The Marketing of the Sousa Band”
Advisor: Jerry Rife, Professor of Fine Arts

Seuﬀert will use archival material at the Marine Band Library and the Library of Congress to investigate the business strategies behind the overwhelming success of the Sousa Band between 1892 and 1896.

Adam Swinder, Biology, CLAES
“Determining the Mechanism of B Cell Suppression Triggered by High Macrophage Numbers”
Advisor: James Riggs, Professor of Biology

He will spend the academic year investigating imbalances between macrophages (innate immune cells) and activation-dependent adaptive immune cells (T and B cells) as seen in cancer cells. His work will further the development of immunotherapy strategies to overcome the immunosuppressive tumor microenvironment.
Ellen Thompson, Journalism, CLAES
“Sex 101: Sex Education in America”
Advisors: Rebeca Basham, Associate Professor of English, and Aaron Moore, Assistant Professor of Journalism

Thompson will spend the academic year writing and producing a play. She will compile and present stories from students about sexual education programs. Her work will explore the idea that the way people are first introduced to sex can shape their decisions and attitudes about it for life.

2007-2008

Dionne Lashley, Music Education, WCC
"My Music and My Education: Music as a Cultural Commodity for West Indian Americans and Implications for Music Pedagogy in Urban Schools"
Advisor: Patrick Schmidt, Associate Professor of Music Education

The pursuit of a critical pedagogy involves an active inquiry into the social, economic, political and cultural factors which frame the practice of education. The peculiarities of these factors as applicable to urban schools forms the content of much research and discussion in the field of education. One cultural and ethnic group which could benefit from a more specifically targeted investigation is the growing population of West Indian Immigrants in New York City. This research therefore seeks to explore the nature of the relationship between music and cultural identity within the West Indian community in the United States and further, to explore the possible implications that the possession of more than one cultural identity or the creation of a previously non-existent one has for pedagogy, particularly music pedagogy.

Katrina Stehle, Biology, CLAES
"Discovery of a Novel, Non-Pigmented Haloarchaea Isolated from a Solar Saltern"
Advisor: Kelly Bidle, Associate Professor of Biology

All known halophilic archaea, or haloarchaea, contain carotenoid pigmentation in part to confer protection from DNA damage imparted by UV irradiation in the natural environment. Recently, a highly unusual strain of haloarchaea was isolated from a water sample collected from a hypersaline environment that is unpigmented. This strain, temporarily designated “Alby” (short for albinus) shows no significant molecular homology to any known genus of haloarchaea. Due to its lack of pigmentation, Alby is likely to be extremely vulnerable to DNA damage, therefore it must possess an intrinsic mechanism to protect itself from intense sunlight during the daylight hours. We hypothesize that Alby may use circadian genes to regulate gas vesicle production (typically used by haloarchaea in response to buoying up and down within a water column in response to oxygen concentration), and hence, avoid peak sunlight. A similar approach has already been well-established in cyanobacteria whereby circadian rhythms are used to regulate
and counterbalance photosynthesis (day) and nitrogen fixation (night).

**Rick Sando, Biopsychology, CLAES**

"Determination of the Effects of Site-Directed Mutagenesis on the Function of Mammalian Casein Kinase I Epsilon"

Advisor: Philip Lowrey, Assistant Professor of Biology and Biopsychology

Circadian rhythms, or rhythms that normally cycle about a day, coordinate the biological processes of an organism to cues from its outside environment. Researchers have elucidated the molecular mechanisms underlying mammalian circadian rhythms at a cellular level by discovering several “clock” genes whose protein products participate in autoregulatory feedback loops to give rise to 24-hr rhythms in physiology and behavior (Hsu 2003). The product of one of these clock genes, CKIε, is a type of enzyme known as a kinase which participates in generating daily biological rhythms by contributing to the timing of degradation of other “clock” components. Mutations in the structure of this enzyme, notably the tau mutation, result in aberrant circadian periods in hamsters expressing the mutant enzyme (Lowrey 2000). The tau mutation was determined to affect the area of the enzyme known as the phosphate-binding pocket; a structure which consists of three amino acid “fingers” that interact with the molecule that CKIε is acting upon (Lowrey 2000). In tau mutants, one of the phosphate-binding pocket amino acids is substituted for a different amino acid, resulting in a less efficient enzyme. In this experiment, site-directed mutations will be implemented in the phosphate-binding pocket of CKIε and the effects of these mutations will be studied. By studying mutations in CKIε, further knowledge can be obtained about its specific role in the mammalian circadian system.

**Emily Wagner, Liberal Studies, CCS**

“Undocumented Hands and Hurdles: Illegal Immigrants Within the Equine Industry”

Advisor: Barbara Franz, Associate Professor of Political Science

The American equine industry, especially in New Jersey and Florida, has a major impact on the U.S. economy as a whole. In fact, the horse assets in the U.S. add up to more than $3.2 billion and 1 in 35 Americans contribute to the industry in some way. The equine industry as a whole employs 1.4 million people and pays over $1.9 billion in taxes each year. The economic impact of the industry on the U.S. economy comes to more than 112.1 billion dollars. These numbers illustrate the importance of the equine industry throughout the United States. However, the effect is even more accentuated in the state of Florida where the equine industry produces over $3 billion in goods and employs over 104,700 people. New Jersey also has a very strong equine industry which supports 21,400 jobs and $111 million spent on labor alone. All this labor helps support and maintains horses worth $628 million. In turn the use of immigrants as workers has a huge effect on the equine industry. In this project, I propose to analyze the impact illegal migrant labor has on the equine industry. The proposed project will contribute to the current debate about the pros and cons of illegal immigrant labor.

**Daniel Ziegler, Entrepreneurial Studies, CBA**

"Analysis of Entrepreneurial Studies Alumni Venture Experiences"

Advisor: Ronald Cook, Professor of Management and Human Resources
This research study will consist of surveying all known Rider entrepreneurial studies (ES) alumni since 2000, to learn what entrepreneurial activities these former students have been engaged in. I will develop a profile of the entrepreneurial graduate’s activities and learn firsthand about their entrepreneurial successes and failures. I hope to develop a conference submission with Dr. Cook from the results. This project will also benefit the entrepreneurial studies program as Dr. Cook can use this data for program rankings and curriculum improvement, and to learn what aspects of their Rider education benefited them the most.

2006-2007

Matthew Geigle, Biology, CLAES
“Identification and Characterization of Death Genes in Haloarchaeae”
Advisor: Kelly Bidle, Assistant Professor of Biology

He will investigate the evolution of genes associated with programmed cell death using organisms from the domain of life called Archaea. Archaea represent an intermediate between two more familiar groups of organisms, simpler bacteria, and more complex, often multicellular organisms such as humans. The presence of these genes in this intermediate group provides a tantalizing opportunity to investigate the selective forces how they might have involved.

Kristin Harley, Psychology, CLAES
“The Effectiveness of the PREP with Latino Couples and their Willingness to Forgive”
Advisor: Anne Law, Professor of Psychology

She will evaluate the effectiveness of the Prevention and Relationship Enhancement Program with families in a Latino community in Trenton, testing the hypothesis that as a result of participation, high risk families will be better prepared to forgive when faced with circumstances under which condemnation would be the innate, cultural response.

James Leone, Biology, CLAES
“An Antisense Oligonucleotide Approach for Studying the Role of the Ret Tyrosine Kinase during Kidney Organogenesis in Axolotl Embryos”
Advisor: Julie Drawbridge, Professor of Biology

He will investigate the genetic mechanisms underlying the development of kidney ducts in vertebrates using embryos of salamanders called axolots. He will be testing the hypothesis that a protein called Ret is necessary to set up signaling pathways in the developing embryo for proper kidney development.

Bethany Trainor, Music Composition, History and Theory, WCC
“Rachel Portman and Her Film Music”
Advisor: Sharon Mirchandani, Associate Professor of Music Composition, History & Theory
She will investigate the career and work of Rachel Portman, one of the very few successful female film score composers today. By analyzing compositional style and techniques deployed by Ms. Portman in conjunction with film directors, Bethany expects to expand understanding of this unique film composer and the role of women in the film music industry overall.

**Elaine Lopes Vieites, Spanish, CLAES**

“The Representation of Latin American Women Immigrants in Contemporary Spanish Cinema”  
Advisor: Linda Materna, Professor of Spanish Language & Literature

She will use Spanish films to investigate obstacles facing immigrant women in Spain. Increasing numbers of immigrants to Spain from Latin America and Morocco have led to the emergence of stereotyping film roles, especially for Cuban women. By focusing on the role of immigrant women in these films, this project will investigate a variety of cultural and economic reasons for this representation.

**2005-2006**

**Mandy St. Pierre, Music Education, WCC**

“Barbershop (Quartets) from birth to today”  
Advisor: Sharon Mirchandani, Associate Professor of Music Composition, History & Theory

**Maria Fischer, Philosophy, CCS**

“Is the recent shift toward treating juvenile offenders as adults justified?”  
Advisor: Richard Burgh, Professor of Philosophy

**Anastasia Glodmina and Daria Georgiyeva, Global and Multinational Studies, CLAES**

“Chechnya and Russia: Nationalism Revived”  
Advisor: Barbara Franz, Associate Professor of Political Science

**Kristy Kleinfeld, Fine Arts, CLAES**

“Studies of the Human Figure in Motion and at Rest”  
Advisor: Deborah Rosenthal, Professor of Fine Arts

**Chris Antanaitis, American Studies, CLAES**

“The Heroine as History’s Mirror: Hester Prynne’s Significance in American Culture as seen in Films of The Scarlet Letter”  
Advisors: James Guimond, Professor of English and Cynthia Lucia, Assistant Professor of English

**Alison Golinski, Marine Science, CLAES**

“Sexual selection in the Oyster Toadfish, Opsanus tau”  
Advisor: Paul Jivoff, Assistant Professor of Biology

**2004-2005**
Dianna Altmiller, Foreign Language, CLAES
“Under the Cloak of Red Riding Hood: A Gender-Focused Interpretation”
Advisor: Maggie Schleissner, Professor of German Language & Literature

Michelle Doherty, English/Fine Arts, CLAES
“Music in Chaucer”
Advisor: Matthew Goldie, Associate Professor of English

Christopher Holcombe, Business Administration, CBA
“A Plug-in Architecture for Complex, Multi-platform End-user Application Development”
Advisor: William Amadio, Professor of Information Systems

Rachel Kahn, Psychology, CLAES
“The relationship between reality television program viewing and adolescents’ concepts of love and romance”
Advisor: Anne Law, Professor of Psychology

Jes Therkelson, Communications, CCS
“The Best Part of Everything: A Documentary Film Exploration of the Evolution of my Family”
Advisors: Thomas Simonet and Barry Janes, Professors of Communication and Journalism