



The GSAS Office of Academic Diversity
welcomes you to the 29th annual

Summer Research Program Symposium



Thursday, July 20, 2017
9:30 a.m. - 3:30 p.m.

The Skyline Level Dining Room, Faculty House
Columbia University

Welcome to the Research Symposium for the Columbia University Graduate School of Arts and Sciences 2017 Summer Research Program (SRP). This year, sixteen undergraduate students from colleges and universities from across the country have taken advantage of this opportunity to conduct original research with Columbia's distinguished faculty.

SRP aims to increase the presence of individuals from traditionally underrepresented groups among the faculties of US colleges and universities. The presentations at this symposium represent the research conducted during the nine weeks that the students were in residence at Columbia. By introducing the students to the joy and rigor of graduate-level work, we hope to encourage and prepare them to attend graduate programs in their chosen fields.

We would like to thank the Leadership Alliance, the Creating Connections Consortium (C3), and the National Science Foundation for supporting our 2017 SRP fellows. We also wish to thank the faculty and graduate student mentors for giving their valuable time to work with the students this summer.

2017 SRP STAFF AND MENTORS

Program Director

Isabel Geathers, Assistant Dean for Academic Diversity

Program Assistant

Afiya Wilson, Administrative Assistant

Faculty Mentors

Vanessa Agard-Jones, *Anthropology*

Niall Bolger, *Psychology*

Julie Crawford, *English and Comparative Literature*

Ellen Ezratty, *Pathology and Cell Biology*

Aaron Fox, *Music*

Frederick Cornelius Harris, *Political Science*

Maja Horn, *Latin American and Iberian Cultures*

Shamus Khan, *Sociology*

Esi Lamouse-Smith, *Pediatrics*

Graciela Montaldo, *Latin American and Iberian Cultures*

Matthew Sandler, *American Studies*

Sagi Shapira, *Microbiology and Immunology*

Josef Sorett, *Religion*

Van Tran, *Sociology*

Graduate Student Mentors

César Colón-Montijo, *Music*

Laina Dawes, *Music*

Geoffrey Iwata, *Physics*

Francisco Lara García, *Sociology*

Angelica Patterson, *Earth and Environmental Sciences*

Anthony Urena, *Sociology*

PROGRAM SCHEDULE

- 9:30–9:40 **Welcome**
Carlos J. Alonso, Dean
- 9:40–9:45 **Graduate Student Mentor and
Cohort Introductions**
Isabel Geathers, Assistant Dean for
Academic Diversity
- 9:45 –10:45 **Natural Sciences Student Presentations**
Jacqueline Saenz
Serifat Adebola
German Martinez
- 10:45–12:30 **Social Science Student Presentations**
Maria Raven
Gabriela Torres
Eva Cordero
Deja Logan
Marisol Villaseñor
Pamela Grigas
- 12:30–1:00 **Lunch**
- 1:00–3:15 **Humanities Student Presentations**
Jacob Broussard
Katrina Martinez
Jordan Mayfield
Elliot Frank
Brianna Martinez
Matthew Taitano
Gabriela Salas
- 3:15–3:20 **Closing Remarks**
Isabel Geathers

UNDERGRADUATE RESEARCH ABSTRACTS

Jacqueline Saenz

California State University, Northridge

Characterizing the Effects of PKD2L1 Loss in Keratinocytes

Faculty Mentor: Ellen Ezratty (Pathology and Cell Biology)

Autosomal Dominant Polycystic Kidney Disease (ADPKD), the most common renal genetic disorder, is characterized by the formation of numerous cysts on the kidney epithelium. ADPKD is caused by a variety of loss-of-function mutations in one of two genes, PKD1 and PKD2, which code for the polycystin proteins (PC1 and PC2). Functional polycystin proteins are required to maintain the differentiated state of the kidney epithelium, which suggests a role for these proteins in epithelial stem cell biology. The goal of our lab is to elucidate the role of Polycystin-2 in epithelial stem cell biology. Studies focused on PKD2 in our lab have shown that when this gene is silenced *in vitro* (in skin epithelial cells, or keratinocytes) and *in vivo* (in mouse epidermis), PKD2L1—a PKD2-related gene—is upregulated. Our lab is interested in characterizing the effects of the combined functional loss of PKD2 and PKD2L1 on stem cell differentiation and proliferation. We will first identify two effective short-hairpin RNAs (shRNAs) specific to the PKD2L1 gene by real-time PCR (qPCR) analysis. We will then investigate the effects of PKD2L1 loss on differentiation and proliferation by immunofluorescence analysis. We hypothesized that the loss of both PKD2 and PKD2L1 will lead to more deleterious effects of hyper-proliferation and loss of differentiation in keratinocytes.

Serifat Adebola

New York City Technical College, LSAMP Scholar

The Effect of Temperature on Viral Genetic Diversity

Faculty Mentor: Sagi Shapira (Microbiology and Immunology)

The purpose of fever, which occurs when the body temperature exceeds 37°C, has been explained as a way the body can create an optimal environment for the immune system to fight a viral infection. However, there has been no study on how fever affects the genetic diversity of the virus itself. Previous studies have shown that viruses maintain an equilibrium between their mutation rate and genetic diversity, which imposes a threshold

known as error threshold in their mutational ability, and that beyond this threshold, error catastrophe occurs due to a higher mutation rate, which then ultimately leads to acquisition of mutations encoding sequences not viable for the virus survival. To better understand the effect of increased temperature (fever) on viral quasispecies, we passaged poliovirus in HeLa cells at three distinct temperatures (34°C, 37°C, and 40°C). We quantified the viral infectivity with plaque assays. Also, after ten successful passages, we extracted RNA from passages one, five, and ten to prepare RNA library, which was then sequenced using MiSeq, a next generation sequencing tool.

We predict that relative to the other temperatures in our study, the viral diversity will be lower at 40°C, as the higher temperature would impose enough selection pressure to push the viruses to the state of error catastrophe, ultimately resulting in a less diverse viral population. Our study provides insight into the effect of febrile temperatures on viral genetic diversity, and increases our understanding of how error catastrophe increases the efficiency of the immune system in fighting viral infections.

German Martinez

Clarkson University

The Impact of Gut Microbial Diversity on Systemic Immune Function in Infant Mice

Faculty Mentor: Esi Lamouse-Smith (Pediatrics)

The diversity of the gastrointestinal microbiome (GIM) is an important contributor to the development and functional maintenance of the immune system. However, changes in the bacterial composition or function of the GIM, defined as dysbiosis, can cause a disruption to immune homeostasis and has been linked to rising rates of autoimmune and allergic diseases. Dysbiosis commonly develops because of an enteric bacterial or viral infection. The impact of this during infancy when the GIM is immature and unstable has not been well described. Recent reports indicate that non-enteric infections, such as respiratory influenza virus infection, can cause GIM dysbiosis. Our lab tested the effects of a systemic non-mucosal viral infection on immunity of infant mice and hypothesized that a systemic viral infection will alter the bacterial composition of the infant GIM.

Methods: Vaccinia causes a systemic viral infection and robust systemic cytokine and adaptive immune cell responses. We infected infant mice born from mothers not exposed to antibiotics

(control; CTRL) and those born from mothers that were treated with antibiotics (called MAT). MAT mothers and infants exhibit GIM dysbiosis because of this treatment. At two time points after infection, we used 16s rRNA qPCR to analyze DNA isolated from the stool of MAT and CTRL mice to quantify the total and relative abundances of three major gut bacteria (the phyla Firmicutes and Bacteroidetes, and the family Enterobacteriaceae). A flow cytometric bead assay was used to measure serum cytokine concentrations as an indication of immune responsiveness in infected CTRL and MAT mice. All results were compared to age-matched uninfected mice.

Results: MAT mice had significantly altered bacterial composition prior to infection. We evaluated concentrations of inflammatory and regulatory cytokines (IFN γ , TNF α , IL2, IL6, IL10) in the serum of CTRL and MAT infected mice.

Conclusions: Our results aim to demonstrate that a non-enteric systemic virus infection can influence the composition of the infant intestinal microbiome. Whether this also alters gene transcription pathways and results in enhanced morbidity still needs to be addressed in this model. Future aims will address recovery of the GIM following systemic infection and identifying strategies by which the GIM of infant mice can be stabilized prior to, during, or following systemic viral infection.

Maria Raven

Amherst College, C3 Fellow

The Community Farm: The Roles of Internal and External Support in a Shared Space

Faculty Mentor: Van Tran (Sociology)

The alternative food movement is one that has swept across the South Bronx, turning abandoned lots from the failed urban renewal efforts of the 1980s into productive community farms and gardens. Community participation and external resource mobilization are crucial to the success of the movement. However, due to a reliance on external support and leadership, there is the potential for these spaces to replicate the social inequality that they are meant to combat. My research will examine the New Roots Community Farm in the South Bronx, which operates as both a community farm and a community garden, in order to observe how it addresses the different needs of its two operations. I will use participant observation and semi-structured interviews in order to observe 1) if the community garden facilitates the

formation of useful relationships between community gardeners 2) how the community gardeners perceive external support and 3) how both internal support (community participation) and external support (resource mobilization) structure the farm. Thus far, I have found that community garden affiliates feel safe, trusting, and more open in the space of the garden, which has encouraged relationship building between community gardeners. Additionally, my research has shown that the community garden is a space in which it is possible for new residents to contribute valuable resources that aid the garden's overall success. However, some community gardeners expressed that they felt overlooked and excluded from the decision-making processes on the farm. This indicates that there are aspects to the farm's structure that may be at odds with the needs of the community in which it is based.

Gabriela Torres Figueroa

Carlos Albizu University

Gender Differences in Emotion Regulation: The Psycho-physiological Effect of Social Interaction and Stress

Faculty Mentor: Niall Bolger (Psychology)

Experiences of interpersonal discrimination can affect the life of a racial minority by causing poor emotional and health outcomes. The current study aims to explore the emotion regulation in African American men and women after experiencing a stressful social interaction with a Caucasian American. It also seeks to explore if gender differences in physiological reactivity, namely heart rate variability (HRV). We examined psychophysiological data from 150 African American participants, during novel social interactions with gender-matched Caucasian Americans through a game of Taboo®. Participants were asked to complete a stressful public speaking task prior to the social interaction. One of the instruments that this study used was the electrocardiogram sensor (ECG) to measure heart rate variability (HRV), this being part of the parasympathetic nervous system, using it as an index to non-consciously assess emotion regulation. The Emotion Regulation Questionnaire (ERQ) score was used to assess the participants' responses to coping with stressful situations, measuring reappraisal and suppression. We analyzed ERQ data with the Statistical Package for Social Sciences (SPSS), and the physiological data with Mind Ware Analysis Software, using ANOVA for an analytic approach. It is predicted that men will score higher in suppression, and women higher in reappraisal on the Emotion Regulation Questionnaire, meaning that men

deal with stressful situations by masking their inner feelings and women deal with stressful situations by sharing their emotions (positive or negative). Keywords: African Americans, emotion regulation, gender differences, heart rate variability, reappraisal, suppression, stress, social interactions.

Eva Cordero

Amherst College, C3 Fellow

Race, Place, and Self-Reported Identity in the Puerto Rican Diaspora

Faculty Mentor: Frederick Cornelius Harris (Political Science)

The goal of this project is to examine impact of geographic location of self-reported racial identity among Puerto Rican migrants to the United States. Since 1990, a lot has been written about the significant proportion of US Latinxs that choose “some other race” on the census question about race, rather than choose one of the conventional categories. Efforts to understand US Latinx racial identity have analyzed the impact of factors such as discrimination, skin color, education, and income on self-reported racial identity. Among a phenotypically diverse community such as Puerto Ricans, it is clear that definitions of race and racial identity are fluid and contextual. Although authors have looked at the impact of being in the United States versus Puerto Rico, the influence of a community’s geographic context within the United States has not been fully explored. This study analyzes responses to questions about race on the Biennial Census data and the American Community Survey (ACS), focusing on several Puerto Rican communities including Orlando in Florida, Holyoke in Massachusetts, and the Bronx in New York. I aim to answer the research questions: (1) Do Puerto Rican racial identities differ based on geographic location? (2) How do the characteristics of a place relate to self-reported identity? As the Puerto Rican diaspora becomes more dispersed across the United States, where they settle could impact how they understand their identity and place in the United States racial structure.

Deja Logan

Howard University, LAMI Fellow

“Mask On, Mask Off”: Performance of American Beauty Standards among Second Generation West African Women

Faculty Mentor: Shamus Khan (Sociology)

West African women have long been left out of academic conversations regarding beauty and assimilation. Often, immigrants and their offspring adjust their appearance-based cultural practices to integrate into the normative American society. Furthermore, physical appearance and attractiveness is a form of privilege that provides upward mobility through better employment options and marital choice. The purpose of this research is to explore how second-generation West African females ages 18-25 engage with American beauty standards and practices. According to Goffman’s theory of dramaturgy, appearance is a mechanism used to present ourselves to others and manipulate their impressions of us. I believe the beauty practice and body work that women of African descent undergo is an act of performance in efforts to increase their racial and beauty capital. My research examines how second-generation West African women perform to assimilate to American beauty standards. Through semi-structured interviews conducted with second-generation West African female students or alumnae of a New York City college, I will examine what beauty means to them, what factors influence their perception of beauty, and how they reconcile American standards with their ethnic standards. Ultimately, I aim to examine how their beauty standards and choice in practices affect their romantic lives and social mobility. Due to the rapid immigration of Africans, there is a reshaping the Black population in the United States. “Black” can no longer be seen as one-dimensional. It is vital to include Black immigrant populations in further research on beauty, assimilation, and mobility.

Marisol Villaseñor

DePaul University

Investigating the Psychological Response to Rumination and Self-Affirmation

Faculty Mentor: Niall Bolger (Psychology)

It is known that there is a health disparity in blood pressure between African Americans and Caucasian Americans. This disparity between two groups can be assessed by considering their psychophysiological response to stressful situations and rumination tendencies. Excessive pondering about negative experiences and situations is prevalent for individuals categorized as the “out-group” in society. In this investigation, the out-group is African Americans and the in-group is Caucasian Americans. Previous research emphasizes that when individuals write about their values, it protects them from psychological threats and can potentially reduce the tendency to ruminate. This study aims to expand previous research on the act of writing about values and how this process can help foster more positive interactions and health outcomes. In taking a psychophysiological perspective, we investigate two primary goals: (1) to examine the effect of stress on ruminating tendencies and blood pressure (2) to test whether self-affirmation can reduce the physiological response to stress and rumination. It is predicted that the individuals given the self-affirmation intervention for their values will both improve in the Rumination-Reflection scale and their blood pressure will not significantly increase compared to the individuals that are given the self-affirmation intervention for someone else’s values. In a between-subjects design, 150 participants had their blood pressure measured while working on a stress-inducing activity and completing a randomized self-affirming writing task. The findings of this study would be useful to physicians, instructors, and counselors; specifically, if self-affirmation lessens the effect of stress on the physiological response and rumination scale, then the minority population can benefit from utilizing the writing task as a coping mechanism. Specifically, it can aid in reducing the prevalence of high blood pressure in African Americans. The methodology employed in this study can be coupled with other forms of cost-effective therapies to combat emotional and mental problems that develop due to rumination, such as depression and anxiety.

Pamela Grigas

State University of New York, Purchase

Being Well Along Amsterdam Avenue: Experiences of
Neighborhood Gentrification and Renewal in Hamilton Heights

Faculty Mentor: Van Tran (Sociology)

Gentrification is an economically, politically, and socially significant phenomenon which is often associated with the upgrading of low-income (and often Black or Latino) neighborhoods by outside middle- or upper-class forces. In New York City, gentrification is relatively common and becoming more widespread. Amsterdam Avenue in Manhattan, New York, is one of the best areas to observe the effects of gentrification because it spans the length of the island and strings together more than 11 neighborhoods, each with different cultures and varying degrees of diversity. Research has explored the health effects of gentrification, often through the lens of public health, but not much work has been done to understand the relationship between gentrification and psychological well-being. In response to this gap, the present study uses qualitative interviews to examine the attitudes residents and business owners in Hamilton Heights have regarding gentrification. The neighborhood is located above Manhattanville and below Washington Heights, and its residents are mostly Dominican and African American. Hamilton Heights has a rich history, which includes its role as a hub for the Harlem Renaissance, and is also beginning to gentrify. Its mix of history, racial diversity, and current experience of gentrification makes the location an interesting target of qualitative study. Themes of well-being in regards to psychological and community health will be discussed.

Jacob Broussard

University of Southern California, MMUF Fellow

De-Colonizing the Archive: Sovereignty, Place, and Infrastructure
within Contemporary Navajo Arts

Faculty Mentor: Aaron Fox (Music)

My research examines how contemporary Navajo artists de-colonize the archive through a historical analysis of sovereignty, place, and infrastructure within Navajo society. The contemporary Indian identity is one shaped by centuries of colonization, subjectification, and forced assimilation, as well as the collective struggle against such processes. This project traces the development of this identity and examines the struggle

for control of it through a historical analysis of Chicago's A Century of Progress World's Fair in 1933. I examine one of the fair's most popular exhibitions, the "Indian Village," visited by roughly forty million individuals in the two-year span of the event. Through an analysis of the fair's publications as well as various documentation of the "Indian Village" by writers, filmmakers, and anthropologists, this paper discusses the implications of de-territorializing native heritage material while expanding upon conventional tropes of the "archive." My work draws upon testimony of contemporary Navajo artists such as filmmaker Nanobah Becker, a descendent of one of the "Indian Village" dancers, who engages with archival film material and audio recordings gathered from the "Indian Village" in her own work. I argue that within the archive lies a place and it is when contemporary Navajo artists engage with archival materials that they are able to participate in a contemporary expression of sovereignty over such places. It is this re-contextualizing of archival material that allows the artists to serve as implements of cultural transmission and identity production both within Navajo spaces and elsewhere.

Katrina Martinez

Williams College, C3 Fellow

Up, Up, and A-Wepa: Reconstructing the Puerto Rican "Nation" in *La Borinqueña*

Faculty Mentor: Maja Horn (Latin American and Iberian Cultures)

The graphic novel *La Borinqueña* features the story of Marisol Ríos de La Luz, an Afro-Nuyorican college student who becomes a superhero. While studying in Puerto Rico, she encounters an indigenous spirit who gives her powers so she can protect her fellow Puerto Rican people as the superhero "La Borinqueña." The comic's creator, Edgardo Miranda-Rodriguez, heavily deploys historical imagery to envision the Puerto Rican nation as an Afro-Nuyorican woman. In doing so, I argue, he counters naturalized representations of Puerto Rican nationhood. Specifically in the scene where Marisol receives her powers, the spirit shows her images of both island and diasporic Puerto Rican history, which reveal not only the violence committed against the people, but also their resiliency. As first conceptualized on the island, the Puerto Rican "nation" meant a prioritization of white Hispanicity over black and indigenous influences and a distancing from diasporic Puerto Ricans, or Nuyoricans. Thus, Marisol's transformation scene directly goes against traditional nationalist ideologies, which

have historically excluded diasporic and Afro-Puerto Ricans. My research will address how Marisol's identity as an Afro-Nuyorican woman represents a Puerto Rican "nation" that centers blackness and the diaspora. Focusing on Marisol's transformation into La Borinqueña, my paper aims to analyze *La Borinqueña* within the context of national identity formation on the island and within Nuyorican communities. Through an exploration of various discourses about Puerto Rican nationhood, I explore how the graphic novel resists tradition and positions an Afro-Nuyorican woman as a physical representation of the nation.

Jordan Mayfield

Wellesley College, MMUF Fellow

Altars to Black Womanhood: An Exploration of Erzulie in the Art of Renée Stout

Faculty Mentor: Vanessa Agard-Jones (Art History and Archaeology)

My research focuses on African American female artist Renée Stout and her repeated reference to the Haitian Vodou deity of love and sensuality, Erzulie, in her installations. This project will specifically analyze Renée Stout's *Erzulie's Arsenal*, *Erzulie's Dreams*, and *Erzulie's Mirror (The Crying Mirror)*. Erzulie's legacy in Haitian Vodou is heavily connected to the history and treatment of enslaved Black women in Haiti and throughout the African Diaspora. As a deity of love, Erzulie's identity is fragmented into different incarnations and is characterized by contradictory attributes, such as purity and sexuality. These various incarnations of Erzulie mirror popular stereotypes and notions of hypersexuality forced onto women of African descent. Using a Black feminist analysis of literature on Erzulie, formal analysis of these installations, and research on Stout and her art-making practice, I will establish a connection between Erzulie and the history of enslaved Black women. The goal of this presentation is to demonstrate that Renée Stout continuously invokes Erzulie in her installations to employ the deity as an archetype for Black womanhood in order to channel the diversity in Black female identity and sexuality.

Elliot Frank

University of Maryland, College Park, MMUF Fellow

Yusef Komunyakaa's Renderings of Black Nature in
Magic City

Faculty Mentor: Matthew Sandler (American Studies)

Yusef Komunyakaa was born in 1941 in Bogalusa, Louisiana, and the landscape of his hometown is a major source of images across his entire poetic oeuvre. Bogalusa was incorporated in 1914 as a lumber town sustained by a large African American working-class population, and racial terror, class oppression, and unchecked extraction of natural resources are three major forces that have shaped the town since its inception. Komunyakaa's *Magic City* is his one collection to singularly focus on his childhood in Bogalusa. By combining close readings of the poems in *Magic City* with perspectives from ecocriticism and African American studies, I argue that Komunyakaa deliberately deploys literary strategies to render "Black Nature" (following Camille Dungy's 2009 poetry anthology of that title). Komunyakaa is inspired by traditional Anglophone nature writing but often must diverge from this tradition to portray how a history of agricultural oppression has shaped modern Black life in the town. In many of the poems I analyze, children commune with nature, and these scenes show how structural forces come to bear on how an individual experiences nature. In *Magic City*, Komunyakaa engages with literary, structural, and phenomenological questions of Black Nature in order to understand and portray his and his community's relationship to Bogalusa and the environment.

Brianna Martinez

Whittier College, MMUF Fellow

The "Afterlife" of A Portrait: Carlos Fuentes' Joycean Reframing of Mexican National Identity in *The Death of Artemio Cruz*

Faculty Mentor: Julie Crawford (English and Comparative Literature)

Carlos Fuentes calls for Mexican writers to unfetter themselves from nationalist literary traditions. He condemns Mexico's self-imposed isolation, as well as the elitist 'tower of individualism' that his 20th-century contemporaries cling to. Alongside Jorge Luis Borges, Octavio Paz, and other leading Boom writers, Fuentes resists the idea that one must think within the boundaries of one's nation, instead advocating for an intellectual

‘cosmopolitanism’ that is restricted by neither place nor time. In this essay, I emphasize the connection that exists between themes of colonialism and the lack of an ‘original’ stable identity in both James Joyce’s *A Portrait of the Artist as a Young Man* and Carlos Fuentes’ *The Death of Artemio Cruz*. I explore how Fuentes draws from the work of James Joyce to address issues of national identity in 20th-century Mexico. After establishing the theoretical perspectives of Joyce and Fuentes as motifs that feature prominently in their respective works, I examine how these two novels can then function as pieces of political fiction—in relation to one another and in relation to the nations they represent. I maintain that these authors’ uses of setting, stream-of-consciousness narrative, and deconstructive writing techniques are similar, while yielding different results: Stephen Dedalus, the titular ‘artist’ of *A Portrait*, achieves a comfortable understanding of himself as an individual in the midst of his retrograde community, which grants him confidence to travel and grow independent of the same institutions that hold his countrymen back; meanwhile, Artemio Cruz’s refusal to productively engage with the corrupted nature of his origin, as well as that of his country, leads to his painful and lonely death, which mirrors Fuentes’ own fears concerning the future of Mexico. I conclude by developing the extent to which Stephen Dedalus’ self-liberation is successful, and how his narrative might function as a model for the inhabitants of Fuentes’ Mexico.

Matthew Taitano

Princeton University, MMUF Fellow

The Transgender Tipping Point: Examining Trans Identities in the Media and Prison Industrial Complex

Faculty Mentor: Josef Sorett (Religion)

In June 2014, *Time* released a cover story entitled “The Transgender Tipping Point,” which highlights the recent rise of media attention to transgender (trans) individuals and their issues, activism, and accomplishments. The cover features Black trans actor Laverne Cox, best known for her role in Netflix’s *Orange is the New Black* (2013–) as Sophia Burset, an incarcerated trans woman. Although trans people’s visibility in popular media has been increasing, anti-trans violence and discrimination, especially toward Black and other of color trans women, still actively permeate society, an issue actors like Cox have addressed via their platforms. For example, Cox was a leading force behind the documentary *FREE CECE!* (2016), which follows the experiences

of a Black trans woman named CeCe McDonald with incarceration in a men's prison after defending herself from a hate crime in 2011. In this paper, I critically analyze Cox's character Burset and McDonald's real-life experiences in relation to other trans media representations to explore the following questions: How do portrayals of trans people in mainstream media speak to the realities of those particularly vulnerable to the prison industrial complex, violence, and discrimination? How do these depictions perpetuate or combat transphobic perceptions that fuel anti-trans violence and oppressive forces based on other identities (e.g., race, sexuality, and class)? Throughout my work, I engage with queer of color critique, media studies, data on trans media coverage and anti-trans hate crimes, and scholarship on intersectionality, incarceration, politics, and law in connection to queer and trans communities of color.

Gabriela Salas

University of Maryland, Baltimore County

Sterilization, the "Only" Form of Contraception for Latina Women: An Historical Analysis Behind the Use of Sterilization on Chicana and Latina women in the United States and Puerto Rico Throughout the Second Half of the 20th Century

Faculty Mentor: Graciela Montaldo (Latin American and Iberian Cultures)

In my research, I explore the use of involuntary sterilization in the United States, analyzing specifically the use of forced and coerced sterilization of women of Mexican origin in California, and also in Puerto Rico. Throughout the 20th century, there were many programs in the US, some being federally funded, that focused on the assimilation of and the control of minority populations. Through these programs, sterilization became a funded form of contraception in a double position of minority: gender and race, which primarily targeted marginalized women. In the 1960s and 1970s, the increased amount of sterilization among Mexican-American women led to the 1975 *Madrigal v. Quilligan* court case. This case incorporated intersections of ethnicity, culture, gender, and sexuality, further bringing the issue of forced sterilization in Chicana and Latina populations to light. Furthermore, during this same time period, women in Puerto Rico were being involuntarily sterilized as a form of experimentation for the advancement of contraception, and arguably as a form of population control. Through this exploration, I will be analyzing the possible influence of the eugenics movement and biopolitics on

the use of sterilization as a form of population control of the Latinx community. In addition, I will be looking into whether the historic use of sterilization—along with the accompanying rhetoric—has affected the amount of Latina women that have voluntarily chosen to use sterilization as a contraceptive method.

GRADUATE STUDENT MENTORS

Natural Sciences Cohort Mentors

Geoffrey Iwata is a PhD candidate in the Department of Physics. His research focuses on the quantum mechanical properties of atoms and molecules. Geoff's lab employs state-of-the-art techniques combining lasers and magnetic fields to trap molecules that are a million times colder than outer space. At these extreme temperatures, the molecules are effectively stationary, and it is possible to study the fundamental physics that govern our universe. With these ultra-cold molecules, Geoff and his lab mates perform some of the most precise experiments in the world, probing how molecules bond together, how quantum mechanics dictate their symmetry, how to break them apart, and much more. Geoff is currently researching a new way to cool molecules that utilizes collisions with helium atoms; this technique should be applicable to a much wider range of molecules than is presently accessible and will enable some of the most stringent tests of quantum mechanics possible with today's technology.

Angelica Patterson is a plant ecophysiological and ecologist with an interest in understanding how natural communities shift and respond to climate change. She completed her BS degree in Natural Resources at Cornell University in Ithaca, NY, and her MA and MPhil degrees at Columbia University. Her background in research includes the study of plant-viral interactions, the ecological and evolutionary relationship of plants and insects, and plant trait plasticity and evolution. Angelica is currently pursuing a PhD in Columbia University's Department of Earth and Environmental Sciences. Her PhD dissertation research examines tree physiological responses to changes in temperature in order to broaden our understanding of the mechanisms behind climate induced plant migrations and forest carbon dynamics. In addition to her research, Angelica upholds her core values in mentorship and professional development for women and underrepresented groups in STEM fields through her leadership roles on and off campus, where she has organized outreach activities as an instructor and mentor for K-12 groups, and developed informational workshops and community building events for Columbia University graduate students. In the fall of 2017, Angelica will begin her work as a diversity research coordinator at Weill Cornell Medical Campus, where she will extend her advocacy in diversity recruitment and retention in the STEM fields.

Social Science Cohort Mentors

Anthony Urena is a PhD candidate in Sociology at Columbia University and a Paul F. Lazarsfeld Fellow. Anthony's research interests lie at the intersections of health inequality, race and ethnicity, gender and sexuality, and risk. His work examines the social factors that contribute to the persistence of health inequalities within marginalized communities. His dissertation explores how racial identity, sexuality, and socioeconomic class impact the ways Black and/or Latino men who have sex with men perceive HIV/AIDS risk in their day-to-day lives. Anthony holds a BA in both Sociology and Human Biology from Brown University. As a Mellon Mays Undergraduate Fellow, he volunteered at several HIV/AIDS NGOs in Rio de Janeiro, Brazil, to produce an ethnography detailing the persistence of the epidemic in the city's metropolitan and slum neighborhoods. Anthony is a Brooklyn native with ethnic roots in the Dominican Republic.

Francisco Lara García is a PhD Student in the Sociology Department with interests in migration, urbanization processes, and the state. Prior to coming to Columbia, he received a master's in Urban Planning from Harvard University and a BA in Political Science, Sociology, and Latin American Studies at the University of Arizona. Francisco also spent two years teaching bilingual fifth grade as a Teach for America corps member in Southern Texas.

Humanities Cohort Mentors

César Colón-Montijo is a PhD candidate in Ethnomusicology in the Department of Music. César completed a BA in Communications at the University of Puerto Rico, Río Piedras, in 2003. His research examines the life and music of the foundational Afro-Puerto Rican salsa singer Ismael "Maelo" Rivera, and his dissertation relates the configuration of diverse affective alliances created through Maelo's music among fans, musicians, and collectors in Venezuela, Panama, New York, and Puerto Rico. César also studies the formation of salsa as a genre that mediates matters of popular devotion, citizenship, drugs, confinement, and abandonment. He is the editor of *Cocinando suave: ensayos de salsa en Puerto Rico* (2015), a landmark collection of scholarly, historical, and journalistic essays, poems, and photo-essays about the histories of salsa. César has received prestigious journalism prizes such as the National Journalism

Award (2008) and multiple awards from the Overseas Press Club of Puerto Rico (2007, 2006, 2002).

Laina Dawes is the author of *What Are You Doing Here? A Black Woman's Life and Liberation in Heavy Metal* (Bazillion Points Books, 2012). A music and cultural critic, Laina has had her writings and photography featured in various print and online publications and radio programs.

An accomplished public speaker, Laina has guest lectured at colleges and universities and presented at music and academic conferences in Canada and the United States. She has also served as an adjunct lecturer, teaching popular music criticism at The New School. Laina is a second-year PhD student in Ethnomusicology at Columbia University. Originally from Ontario, Canada, she currently resides in Brooklyn, New York.

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