

Laidlaw Undergraduate Research and Leadership Scholar Program 2018 Abstracts

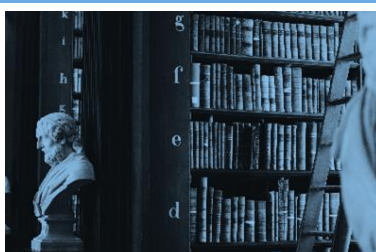
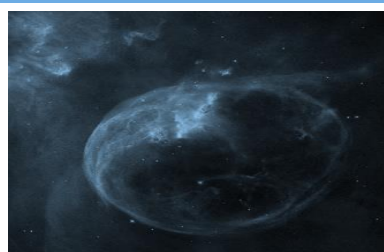
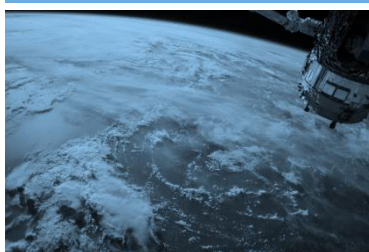
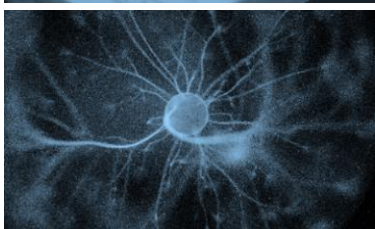


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Abstracts

Jack Becker CC'21: Creative Writing

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Faculty Mentor(s): Joscelyn Jurich, Ph.D. candidate in the Columbia School of Journalism

Title: Exploring Phallocentrism on Grindr

Abstract: This study is an exploration of how phallocentrism (defined here as the privileging of and obsession with the penis) operates within queer culture, mainly on the gay hook-up app Grindr. Referencing studies and personal accounts by Susan Bordo, Lenore Tiefer, Gilbert Caluya, Kent Chuang and others, this project hopes to take aim at the ways in which phallocentrism can be a source of body-shaming and sexual racism (both the exclusion and the fetishization of people solely based on their race) found on many gay hook-up apps and in the LGBTQ+ community at large. Interviews of LGBTQ+ people who have used Grindr supplement the research materials as well, most of which support the findings that phallocentrism is alive and well in queer culture, affecting the experiences of both people who adhere to a phallocentric mindset and the ones who do not. Because this project is still ongoing, no concrete findings or claims can yet be made; however, there is already much to be said about this topic, along with the ethics of such a project in the first place.

Heather Hsun Chang CC'21: Neuroscience

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Faculty Mentor(s): Richard Axel, professor of neuroscience

Title: Does Internal State Modulate the CO₂ Avoidance Neuronal Pathway?

Abstract: Animals engage in innate behaviors from birth, without learning. These innate behaviors rely on genetically defined neural circuits, making them a great system to study the neural pathways from sensory input to behavioral output. Despite being hardwired, innate neural circuits can also be modulated by internal states. *Drosophila melanogaster* display innate avoidance to carbon dioxide (CO₂). Olfactory sensory neurons (OSNs) detect CO₂ and transfer information to the antennal lobe (AL) in the fly brain. Projection neurons (PNs) then convey information from the AL to the mushroom body (MB), a center for learning, and the lateral horn (LH), which is involved in innate behaviors. Previous research has shown that hunger states can affect the neural circuits that underlie CO₂ avoidance behavior. In starved flies the MB is necessary for CO₂ avoidance, but in fed flies, it is not needed. Prior work in the Axel laboratory has demonstrated that a group of neurons in the LH, Split4, is necessary for CO₂ avoidance in fed flies. Based on these data, we wanted to determine whether Split4 neurons can be affected by internal states, similar to the MB. We silenced Split4 by expressing the inward-rectifying potassium channel, Kir, and compared CO₂ avoidance behavior between fed and starved flies. Starved flies displayed the same impaired CO₂ avoidance as the fed ones, suggesting that hunger does not influence these neurons. From this finding, our next step is to test all the identified neurons that are responsive to CO₂ to determine whether they can be modulated by hunger state.

Donian Ike Chyong CC'21: Biochemistry

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Faculty Mentor(s): Yvonne Saenger, assistant professor of medicine in the Division of Hematology/Oncology

Title: Quantitative Multiplex IF (qmIF) evaluation of the tumor microenvironment (TME) in pretreatment samples of patients with metastatic breast cancer (MBC) and serous ovarian carcinoma treated on Eribulin-LF phase I study.

Abstract: Because the tumor immune microenvironment (TME) has both prognostic and predictive capabilities in cancer, the TME may be a source of biomarkers to help distinguish higher risk patients who are likely not to respond well to standard therapy in order to sooner provide them with additional or modified treatment. By being able to simultaneously stain for multiple different protein markers at the same time in the same tissue sample, quantitative multiplex immunofluorescence (qmIF) is a novel technique and a powerful tool to measure cell densities of different types of immune cells and to perform proximity analysis between tumor and immune cells to evaluate the TME. We performed qmIF on breast cancer (BC) and ovarian cancer (OC) tissue samples taken from patients treated in an Eribulin-LF phase I study at the Columbia University Medical Center. BC and OC tissue samples were stained for DAPI (nucleus), CD3 (T cell), CD8 (cytotoxic T cell (CTL)), CD68 (macrophage), pancytokeratin (tumor), FOXP3 (regulatory T cell (T reg)), and HLA-DR (activation). Phenotyping was performed with inForm software. Nearest neighbor analysis revealed similar patterns between the BC and OC cases. There was greater TIL infiltration than myeloid cell infiltration. The CD8+ population was greater than the FOXP3+ population. This preliminary study into the usefulness of qmIF and inForm to evaluate the TME garnered promising results that assist in eventually creating an assay to predict outcome for cancer patients.

Makena Binker Cosen CC'21: Public Health

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Faculty Mentor(s): Dana March, assistant professor of epidemiology

Title: Market Research on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome mHealth Apps

Abstract: Between 836,000 and 2.5 million Americans suffer from myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), a condition that confines at least a quarter of patients to their bed or home for long periods during their illness. ME/CFS is characterized by severe, chronic fatigue that lasts six months or longer and that cannot be explained by any other disease, as well as other symptoms. Scientists have not yet identified its cause(s) and are still developing laboratory tests for direct diagnosis. Thus far, research has been greatly informed and re-directed by the descriptions patients provide about their symptoms and how their disease has changed over time. However, given that an important symptom of ME/CFS is poor memory, retrospective studies do not provide reliable information.

Our lab is developing a mobile health app designed to help ME/CFS users track their symptoms in real time and use the anonymized data to advance research in the field. While apps already exist, they are not specific to the disease nor do they return population-wide analyses. This summer, I reviewed and evaluated over twenty mobile apps designed for and used by ME/CFS patients to track their symptoms to understand the community's needs and uses. We are using this market data to guide our app design and inform our focus group discussions moving forward. Our app also has the potential to improve patient-physician communication and increase awareness about the condition and treatments in and outside of the ME/CFS community.

Mary Soledad Craig CC'21: Political Science

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Faculty Mentor(s): Lara J. Nettelfield, senior lecturer in the discipline of human rights in the Department of Political Science

Title: An Oral History of Undocumented Immigration from Latin America to the United States

Abstract: As a part of the Laidlaw Research Program, I am creating an oral history project exploring the experiences of undocumented immigrants from Latin America who are now living in the United States. In order to prepare for this, I utilized my first summer of research to gather knowledge on U.S. immigration law, its historical narrative and shifting policies under the Trump administration. In addition, I looked into the best ways to ethically conduct interviews and developed a list of interview questions. For the duration of the year and through next summer, I plan to conduct interviews throughout New York City and travel to the southern border. My goal in conducting this research is to bolster the voice of a marginalized community in the U.S., which is silenced by the nature of their status. In order to achieve this, I will write the narratives I receive and publish them collectively on an online platform. By sharing these stories I intend to engage with major questions surrounding the implications of deeming human beings as illegal, American identity and ownership of the American Dream.

Cori Fulcher CC'21: Undeclared

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Faculty Mentor(s): Katharina Volk, professor of classics

Title: Aeneid IV: A Sort of Translation

Abstract: I worked on a creative nonfiction project this past summer. It's part translation of Book IV of the *Aeneid*, part personal narrative, and part research essay. My work draws on the history of early New York, mental illness in classical literature, and the diary form. I'm focused on blurring the line between translation, adaptation, and commentary to create a new narrative that is a coming-of-age story, a deconstruction of "breakdown" narratives and an exploration of reading ancient literature in our time. I also explore other iterations of the Dido and Aeneas story in art and more recent literature particularly Elena Ferrante's *Neapolitan Novels*. My project is something between essay, diary and translation to explore both a work and reactions to the work.

Midori Hosoda CC'21: Medicine, Literature and Society

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Faculty Mentor(s): Jeremy Veenstra-VanderWeele, professor for the implementation of science for child and adolescent mental health in psychiatry

Title: Relationship Between the Maternal Serotonin System and Neurodevelopment in an Animal Model of Autism Spectrum Disorder

Abstract: Serotonin (5-HT), a neurotransmitter, has been known to play a crucial role in ASD, but exactly how it contributes to the disorder remains unclear. Serotonin neurotransmission is modulated by the serotonin reuptake transporter (5-HTT or SERT). Mutations in SERT have been found in ASD patients, including the Gly56Ala mutation that leads to enhanced SERT function. In a 2012 study conducted by the Veenstra-VanderWeele lab, male mice with the Gly56Ala variant of the serotonin transporter gene had hyperserotonemia, an unusually large amount of serotonin in the blood, altered central 5-HT system function and behavioral abnormalities related to ASD.

Midori's summer research examined the impact of the maternal SERT genotype on development and behavioral outcomes of offspring. Mothers with two Gly56Ala copies (AA) or normal copies (GG) of the SERT gene were mated with fathers of the opposite genotype. The resulting offspring were heterozygous (i.e. they have one copy of the Gly56Ala gene and a normal copy). The development and behavioral outcomes were investigated by 1) serotonergic labeling of mouse embryo brains and 2) analysis of experimental videos of the offspring's social behavior either as juveniles or adults.

Diane Huang CC'21: Economics-Mathematics

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Faculty Mentor(s): Louisa Gilbert, associate professor of social work

Title: Geospatial Analysis of Access and Availability of Standing Order Naloxone in NYC

Abstract: This study analyzes the availability and accessibility of standing-order naloxone in pharmacies by community in New York City (NYC). Lay administration of naloxone has been shown to be a highly effective, feasible and safe way to reverse fatal opioid overdose, and community-based interventions to widen access to naloxone and promote lay administration have resulted in significant decreases in opioid overdose deaths. However, variations in access to pharmacies and naloxone may further fuel racial and socioeconomic disparities in the opioid epidemic.

As of June 2018, 1,151 pharmacies in NYC were listed as having access to standing order naloxone, which allows consumers to purchase naloxone without a doctor's prescription. Eight hundred and forty-four of these pharmacies (73 percent) responded to phone surveys that examined pharmacy protocol towards the sale of naloxone. Preliminary descriptive frequencies showed that of the pharmacies that were listed as having standing orders of naloxone, 18.9 percent responded that they did not carry naloxone and 25 percent did not have it in stock. Meanwhile, 10.9 percent responded that a doctor's prescription would be required in order to purchase the naloxone, despite being listed as participating in the standing order. Of the retail staff (as opposed to pharmacy staff) at large chain pharmacies, 83 percent were not familiar with standing-order naloxone. This data will be further analyzed using geospatial information systems (GIS) and compared with publicly accessible GIS data for pharmacies, syringe sightings, and racial and socioeconomic status.

Julienne Jeong CC'21: Neuroscience and Behavior

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Faculty Mentor(s): Ottavio Arancio, professor of pathology and cell biology and of medicine

Title: Using Patch Clamp Method to Investigate Role of Amyloid Precursor Protein (APP) in Alzheimer's Disease

Abstract: Julienne Jeong is a member of the Dr. Ottavio Arancio Laboratory, which investigates the relationship between brain function and memory. The Arancio Lab primarily studies the mechanisms of Alzheimer's Disease (AD), the most common form of dementia. Typically, AD is associated with intracellular neurofibrillary tangles and extracellular amyloid plaques, which are insoluble forms of tau protein and amyloid-beta that can often be found in brains of patients with AD. However, as the Arancio Lab discovered that tau and amyloid-beta oligomers are actually mediated by Amyloid Precursor Protein (APP), Julienne is currently involved in a project that is focused on identifying the electrophysiological properties of APP. Accordingly, she conducts patch clamp experiments on individual neurons, which allows her to measure the electrical activity of neurons in presence of a down-regulation or over-expression of APP. In order to control the level of APP expression, she creates hippocampal primary cell cultures, which are appropriate for genetic manipulation. From these experiments,

Julienne hopes to further explore the role of APP in mediating neuronal function and how it can both alleviate and disrupt the neurotoxic processes of tau and amyloid-beta oligomers.

Gayoung Lee CC'21: Computer Science | English and Comparative Literature

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Faculty Mentor(s): Alexandra Watson, lecturer for first-year writing at Barnard College

Title: How to Read a Poem

Abstract: This project examines the language of freedom and blackness in Phillis Wheatley's poem *On Being Brought from Africa to America* (1773). It explores how the poem negotiates its relation to both white and black audiences through syntax, myth, and biblical imagery, and looks at how these ideas can be traced through several of Wheatley's other poems as well. It not only queries Wheatley as a poet but also challenges previous audiences and readings of her work, demanding a re-examination of the ways in which scholars have historically neglected to acknowledge how the ambiguity in Wheatley's allusions and syntax enable a critique of whiteness to emerge in her poetry. Ultimately, it hopes to ask us to practice reading anew a poem that has already been read and written about extensively by scholars, in search of new possibilities - hence the tentative title of the resulting paper: *How to Read a Poem*.

Christina Lee CC'21: Biophysics

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Faculty Mentor(s): Anthony Fitzpatrick, assistant professor of biochemistry and molecular biophysics

Title: Using Expansion Microscopy to Visualize Tau in Human Brain

Abstract: To overcome the resolution limits of a light microscope, expansion microscopy (ExM) was developed to achieve higher resolution imaging of biological samples through a process of sample expansion. ExM was used to visualize tau in samples of human brain tissue with Alzheimer's disease (AD). An expandable polymer web was formed within the tissue, causing it to expand approximately four to six times its original size. Along with staining for DNA, immunofluorescence (IF) staining labeled tau within the expanded tissue, allowing for the visualization of expanded tau. Methods to enhance IF staining in ExM were explored and compared with IF staining in standard tissue. Though AD is often characterized by the presence of tau aggregates, the precise relation between tau aggregates and the manifestation of AD is unknown. Further studies in ExM could elucidate the location of tau aggregates in the brain along with the interaction of tau aggregates with DNA, clarifying the role of tau aggregates within the brain.

Debbie Leung CC'21: Sociology | Computer Science

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Faculty Mentor(s): Alexander Gil Fuentes, digital scholarship librarian

Title: Human and Animal Inmates Comparative Study ("How does the interplay between biological factors and social perception of biological factors (1) influence the ways we treat different groupings along race and species in captivity and (2) govern efforts to improve captives' welfare?")

Abstract: Since the 19th century, human rights in penitentiary systems began to gain public attention. Abuses in Abu Ghraib, Iraq in 2003 and Guantanamo Bay, Cuba in 2009, in particular, ignited the ethical debate about prison violence and power relations within the system, first propounded by the Stanford Prison Experiment in

1971 and the BBC Prison Study in 2002. Animal welfare, on the other hand, only started gaining momentum in scientific research and the public sphere in the 21st century, with increasing attention paid towards the deaths of trainers caused by aggressive animals kept in captivity, namely the death of Dawn Brancheau by Tilikum in SeaWorld in 2010. Parallels can be drawn between the two systems of confinement regarding the underlying mechanism of treatment practices on the wellbeing of inmates that contribute to human and animal rights controversies. Despite the different motivations behind the prison system and animal captivity, with the former focusing on punishment (seldom rehabilitation) and the latter on commercial profits (sometimes conservation), the ways in which the interplay between biological factors and social perception of biological factors influence how we treat different groupings along race and species in captivity are rather similar insofar as race and species are prone to surface-level discrimination (based on socially constructed biases). My research project, therefore, aims to explore how biological factors are often used to justify discriminatory treatment based on social biases of race and species, and hence shed new light on possible reforms addressing the root cause of justice issues in both systems.

Caroline Magalhaes de Toledo CC'21: Biochemistry

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Faculty Mentor(s): Clarissa Waites, associate research scientist in the department of pathology and cell biology

Title: The role of Rab GTPases in alpha-synuclein mediated alterations in vesicle reuptake

Abstract: It is well established that in Parkinson's Disease, the neurons present elevated levels of the protein alpha-synuclein that leads to the formation of protein clumps. One of the effects of this increase in alpha-synuclein is alterations in vesicle reuptake, which occurs after the neuron releases vesicles with neurotransmitter in the synapse. However, the specific mechanism that leads to these alterations is still unclear. In this project we studied the role of Rab GTPases, an important class of proteins that are fundamental to transporting vesicles within the cell, in the alterations in synapses caused by alpha-synuclein. These changes were studied using live cell fluorescence microscopy of mice neurons with a pH sensitive fluorescent marker, which allows for tracking whether the vesicles were released and reuptaken by the cells. A comparative analysis was then performed with cells in which the expression of alpha-synuclein and different Rab GTPases was induced using transfections, a method of inserting external DNA sequence in a cell.

Collins Mokuia CC'21: Neuroscience and Behaviour

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Faculty Mentor(s): Ahluwalia Kavita, associate professor of dental medicine

Title: Building Capacity to Address Oral Health in Lea Toto Clinics, Nairobi, Kenya

Abstract:

Research Question: How can existing care networks be leveraged to address oral health?

Background: Kenya has one dentist per 44,500 Kenyans. Lea Toto is a network of eight clinics located in informal settlements in Nairobi, Kenya, that target children (and families) living with HIV. Although oral health is central to nutrition and wellness in people living with HIV, it is not routinely addressed by healthcare workers targeting underserved populations living with HIV.

Methods: Survey methodology was used to assess Lea Toto nurses', clinical officers' and nutritionists' oral health-related knowledge, opinions and practices. The information collected was used to develop and implement an oral health intervention.

Results: Survey data (N=21) suggest that 80.9 percent of workers report toothaches as the most frequent dental or oral problem of their patients, and 76 percent of workers indicate that patients complained about difficulty chewing. All participants requested oral health training but clinical officers and nurses requested training on oral examination, while nutritionists requested more information on the relationship between oral health and nutrition.

Conclusion: Although oral problems are prevalent among Lea Toto patients, oral health is not systematically addressed. Healthcare workers are willing to seek additional training to integrate oral health into their care systems.

Ivana Moore CC'21: Political Science - Statistics

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Faculty Mentor(s): Thai Jones, lecturer in the discipline of history

Title: A Historical Analysis of the School Desegregation Process in Flagler County, Florida

Abstract: This project sought to build a context of the school desegregation process in Flagler County, Florida, in the time period after the 1964 Civil Rights Act until the final integration in 1973. Flagler County, Florida was named in a lawsuit with a handful of other school districts in the United States for their noncooperation with the federally mandated desegregation. This project consisted of archival research of local and national new sources as well interviews with students and teachers during this time period.

Klara Pokrzywa CC'21: English | Creative Writing

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Faculty Mentor(s): Julie Crawford, professor of humanities

Title: Mytho-theological revelation in the work of T.S. Eliot and H.D.

Abstract: This project focuses on the mythological and theological aspects of the revelations communicated by T.S. Eliot's Four Quartets and H.D.'s Trilogies. The broad idea of a revelation is looked at in two different ways: by contextualizing the writers' revelations in a mythological genealogy and by examining the writers' attempts to "purify" the language they use in order to effectively communicate abstract ideas of transcendence. This research draws upon primary sources, the poems themselves, texts that were influential in their creation and personal documents of the writers, as well as critical and analytical secondary texts. Putting Eliot and H.D. in conversation with one another allows for a rich exploration of the modernist view of the world after World War II. By exploring Eliot and H.D.'s differing approaches to revelations that arose out of the modernist war experience, this project is working to uncover the ways in which the writers responded to and created mythological and religious traditions.

Peter Rutkowski CC'21: Financial Economics

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Faculty Mentor(s): Michael Ting, professor of international and public affairs and political Science

Title: The Political Economy of American Public Transportation

Abstract: This project looks at the public transportation systems of several major cities and metropolises throughout the United States, first drawing upon available data and metrics to analyze performance over the past

+/- 10 years. Factors studied include average number of users, average number of delays and amount of yearly funding, among others. Past research on public transportation tends to focus on too historic of data or on too international a focus for use here. For each system, public transportation routes were overlaid on maps of Metropolitan Planning Organization (MPOs). Each MPO was used to determine the number of impacted national legislative districts, whose voting results were analyzed in order to determine political polarization in a specific transportation district. Other factors, including income and demographic information, were also considered. Regressions were run to analyze data and infer correlations between measured political polarization and the efficiency and quality of public transportation in major American urban areas. The goal of this study is to give a current outlook of public transportation in a rapidly changing political climate.

Isaac Schott-Rosenfield CC'21: English | Classics

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Faculty Mentor(s): Michael Golston, professor of english and comparative literature

Title: Bringest to Focus: Subject Schemas in The Cantos of Ezra Pound

Abstract: In this project I analyze the formal method and substantive composition of “subject schemas” in *The Cantos* of Ezra Pound, examining their seemingly contrapuntal mechanism and ethical implications. I view this process through the lens of the fugue, as well as Pound’s esoteric “ideogrammic method” of Chinese translation. In isolating specific components of these schemas, I aim to demonstrate the intellectual and emotional underpinnings which are sustained throughout the poem, and upheld as the durable inheritance of the civilization it treats. By doing so I hope to clarify and encourage Pound’s stylistic innovation, and develop our understanding of his aesthetic, economic and philosophical theories, both abetted and instanced by the principles of his form. The sincerity ideogram, which Pound lifts from Confucius, is perhaps the most important component within *The Cantos*. In it, Pound identifies a sub-component “ch’èng,” meaning “bringest to focus.” It is both the means of achieving sincerity and a definitional aspect of it. This is a model of Pound’s technique, which is both the execution and the very stuff of his poem, by which a fragmentary account of civilization can be joined into a “mind entire.”

Manasi Sharma CC'21: Physics | Computer Science

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Faculty Mentor(s): Charles J. Hailey, professor of physics

Title: Investigating Polars

Abstract: The cause of Galactic Ridge X-ray Emission (GRXE), a stream of X-rays coming from the galactic center, has been a mystery for years, and one proposed solution for what causes it is the notion of polars, which are binaries of a white dwarf and a star. To test this, six selected polars will be observed by the NuSTAR telescope. However, polars change in brightness over time, so we can only observe them when they are at a sufficient level of brightness (>1000 counts in our detector). In order to determine whether polars can be observed by the telescope, we use the online NASA tool WebSpec and the analysis software xspec to predict how many counts would appear in the detector from the different polar sources. We show that we can successfully decide which polar sources would be optimal to observe and approximately when they should be viewed.

Jihae Simpkins CC'21: History

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Faculty Mentor(s): Rebecca Kobrin, associate professor of American Jewish history

Title: Anti-displacement Activism in Chinatown and the Lower East Side

Abstract: My research over the past few months has had a decidedly practical element to it. I'm not really studying anti-displacement activism in Chinatown and the Lower East Side. I'm participating in that activism, and this participation takes the form of research. After spending the first six weeks giving myself a crash course in the Zoning Resolution, rent stabilization laws and the like, I essentially wrote to an anti-displacement group, LESON (Lower East Side Organized Neighbors), and asked them what it would be useful to have a college student research, and they said: sewers. NYC's sewage system cannot accommodate all the new developments proposed throughout the city. It cannot support the existing population. Most of NYC, including virtually all of Manhattan, is part of a combined sewer system, meaning that waste water and storm runoff go to the same pipe. This means that if we get too much rainwater (as little as 1/10 an inch in an hour), the system is designed to dump all excess, including human waste, into the nearest water body. This is called a combined sewage outfall, or CSO. The city is trying to deal with CSOs, but not adequately and not with an eye toward the development heavy future NYC is heading towards. Groups like LESON are trying to change that future.

Shirley Tan CC'21: English | History

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Faculty Mentor(s): Teresa Sharpe, lecturer in the discipline of sociology

Title: The Effects of Gender on Negotiations and Promotions in Finance

Abstract: The purpose of my research project focuses primarily on distinguishing the effects of gender on negotiations and promotions in the world of finance. Noticing a clear lack of women in a hedge fund office I worked in following a news article discussing gender discrimination in finance firms, I became curious about the wide-reaching effects of gender on one's experience in the workplace. However, that was very broad and it wasn't until after I met with my faculty adviser and read some articles she suggested that I narrowed down my goals. Originally, I intended to base most of my research on interviews with women in finance. However, due to their busy schedules and the limited six weeks I had this past summer, this became difficult to schedule. Towards the end of my time, I decided to look more deeply into previous scholarship on the topic to discover major trends and themes that have already been discovered. Different genders negotiate differently when they are doing it for themselves in terms of their own salaries, benefits or potential promotions and when they were negotiating on behalf of their companies. Different gendered attitudes regarding negotiations also impact who gets promoted into which positions. While there are women in high positions of power, they are typically funneled into certain positions or departments due to their gender. I still want to closely read court cases where women feel like they're being passed over for promotions unfairly and interview people in the world of finance, but this past summer certainly taught me how difficult it is to do sociological research in such a short period of time: human behavior and social occurrences take time to analyze and so this was a very ambitious project for a short six weeks.

Arnav Tandon CC'21: Classics | Mathematics

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Faculty Mentor(s): Katharina Volk, professor of classics

Title: Ulysses as a Legacy-Hunter in Horace's *Satires II.5*

Abstract: Many of Horace's later works have drawn deserved admiration, though scholars have unfairly glossed over his earliest work, the *Satires*. But the *Satires* remain an essential component of the Horatian literary corpus

both for their content and for their influence on the satirical genre. In some poems, Horace humorously elucidates daily happenings in and around Rome, and in others, he engages mythical subjects. The *Satires* simultaneously illustrate Roman life and wrestle with fundamental philosophical concepts such as greed, virtue, and happiness. *Satires II.5* is particularly salient in this way, as Horace elaborates on the Roman concept of legacy-hunting through a conversation between Ulysses and the blind prophet Teiresias.

By reimagining Ulysses, one of antiquity's most famous heroes, as a legacy-hunter, Horace accomplishes two goals. First, he introduces his audience to the Roman phenomenon of legacy-hunting, a form of social parasitism in which one person performs social and political favors for another in exchange for a share of the latter's inheritance after death. Secondly, he juxtaposes Greek and Roman morality (through his transposition of Ulysses into a Roman cultural environment) to posit Rome's relative moral misdirection. As I argue, the fact that Ulysses has some difficulty acclimating to his new setting and accepting Teiresias' advice to become a legacy-hunter symbolizes the immorality that Horace identifies in Roman society. Thus, *Satires II.5* can be read as a powerful critique of some of Rome's social values and priorities.

William Wang CC'21: Computer Science

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Faculty Mentor(s): Julia Hirschberg, professor of computer science

Title: Analysis of Linguistic Patterns in Perceived Truthful or Deceptive Speech

Abstract: Are there any differences between speech that are viewed as being truthful or deceptive? We aim to answer this question by gathering data on different statements that are judged as being truthful or deceptive, and analysing the linguistic properties of these statements using labelling and pattern recognition.

To gather data on which statements are truthful or not, we used the Amazon Mechanical Turk (MTurk) framework to crowdsource work efficiently. We sourced the statements from the Columbia Cross-Cultural Deception Corpus and placed these audio samples into a simple game, where the player guesses if a statement is true or false. We collect all of this data and perform linguistic analysis on the pre-labelled statements. Labels we use include the Linguistic Inquiry and Word Count (LIWC).

Michael Wang CC'21: Economics | History

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Faculty Mentor(s): Shigeo Hirano, associate professor of political science

Title: Board Composition and Labor Market Outcomes in Progressive Era Occupational Licensing: An Investigation into Regulatory Capture in Dentistry

Abstract: Occupational licensing affects 29 percent of the American workforce, and recent studies argue that this type of regulation, which requires licenses to practice certain occupations, has far-reaching implications on social mobility and labor markets. When state-level occupational licensing was first created in the period of 1870-1930, there was significant variation on how the legislation was written. In all states, the board of examiners controlled regulations, and some legislatures left it up to the governor to appoint members, while others allowed the professional groups who were affected by the board to appoint members. I test how the two different models affect labor market outcomes in the dentistry profession and find, when controlling for states that experienced secular population decline, there is a significant difference in occupation growth rates in the 10 years subsequent to licensing enactment between the two groups. The purpose of this is to understand whether professional

groups will try to control occupation growth to inflate wages if they have the power. While this phenomenon was especially present during the time covered in the study, even in recent years professional groups have exerted the same influence on the governmental organizations that regulate them.

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Faculty Mentor(s): Yao Lu, associate professor of sociology

Title: Change, Suicide, and Rural-Urban Migrant Workers in China

Abstract: This project project aims to conduct a study of suicides of rural-urban migrant workers in China. As a large proportion of reasons for suicides in China, though often compounded by depression, are in fact social in nature and stem from complex social power dynamics, this project seeks to approach the topic not from a medical standpoint as it would be in the West, but from an ethnographic viewpoint. By exploring the economic and social systems set in place by post-Mao China, this project attempts to illuminate external factors leading to suicide by Chinese migrant workers, and to understand suicides as the final manifestation of a migrant worker's struggles.