



Macalester College  
Senior Honors and Awards

2020

May 2020

Macalester College is fortunate to have an abundance of creative, thoughtful and engaged students. The graduating seniors who have completed honors projects and received departmental awards have further distinguished themselves through these accomplishments. They deserve our congratulations and gratitude.

The first half of this booklet describes the honors projects completed by the Class of 2020. These compelling and original works, completed under the guidance of dedicated faculty sponsors, were judged worthy of honors by an examining committee in accordance with the standards of their fields. A copy of each project will become part of the DeWitt Wallace Library's permanent collection, joining those completed by previous honors graduates.

The second half of this booklet describes the awards and prizes departments have bestowed on their graduating seniors. These awards are made possible through the generous financial support of donors, who chose to demonstrate their appreciation for the college by honoring student academic excellence.

It is with great pride I make these achievements public and wish the Class of 2020 the very best in the years to come.

Ann Minnick  
Director of Academic Programs and Advising

# HONORS PROJECTS

**Diala Michel Abboud**

**Pollen and Organic Carbon Deposition as an Indicator of Changing Subalpine Environment During the Late Holocene: Fishercap Lake, Glacier National Park, Montana, USA**

Glacier National Park is a pristine alpine landscape that reflects climate change since the retreat of Ice Age glaciers as well as the imprint of anthropogenic climate change. The park welcomes hundreds of thousands of visitors every year and has been the subject of recent paleoclimate studies. Lake sediment cores from Fishercap Lake were analyzed across the ~4000 year depositional record in the shallow subalpine lake.

Honors Project in Geology  
Advisor: Kelly MacGregor  
Geology Department

\*\*\*\*\*

**Jane Celine Acierno**

**Can Good Groups Create Immoral Individuals? Examining Vicarious Moral Licensing in Political Ingroups**

People often engage in “moral licensing,” referencing their past good deeds, or even their ingroup members’ good deeds, to justify subsequent immoral behavior. The present research studies this latter phenomenon of vicarious licensing in the context of political ingroup identity. We hypothesized that learning about their political party’s moral actions would lead people to behave less morally themselves, that this effect would be heightened among people with stronger political party identification, and that it would be weakened among people with a strong moral identity concerning the behavior in question. Together, three studies did not establish strong support for these hypotheses. The implications of these findings are discussed, and directions for future research are proposed.

Honors Project in Psychology  
Advisor: Steve Guglielmo  
Psychology Department

\*\*\*\*\*

**Fiona E. Adams**

**Using Natural Language Processing Tools to Understand the Rhetoric of the Opioid Epidemic**

Current understanding of opioid use disorder (OUD) in the media focuses on either individual experiences or aggregate statistics. While these give a sense of the scale of this disorder, they do not capture the diversity of drug users and dissimilarity of drug experiences. This paper aims to expand understanding of the opioid epidemic by highlighting a range of individual experiences with OUD, and proposes a unique method to do so. We look at 50 interviews of individuals with personal, familial, and/or professional relationships to opioid use. Ethnographic interview analysis often takes place via inductive content analysis, a method wherein researchers go through each interview and “code” it by identifying themes, categories, and sub-concepts. We present an alternative approach: an adjusted, semi-supervised Latent Dirichlet Allocation (LDA) process. The adjustments we propose include modifications of the cleaning process, analysis on the sentence rather than document level, and stratification by “person type,” defined for this dataset as a person’s personal, familial, or professional relationship to the opioid crisis. Using this process, we find common themes across all interviews, with similar tone and focus among individuals with the same person type. Using these themes, we cultivate an understanding around ideas such as stigma, harm reduction, and social drug use. We conclude that while it cannot replace manual read-throughs, our adjusted LDA process is a useful tool for understanding and connecting individual drug experiences and has the potential to be generalized to understand populations in other ethnographic datasets.

Honors Project in Mathematics, Statistics, and Computer Science

Advisor: Leslie Myint

Mathematics, Statistics, and Computer Science Department

\*\*\*\*\*

**Sophia Miriam Alhadeff**

**Canvas Totes and Plastic Bags: The Political Ecology of Food Assistance Effectiveness at Farmers' Markets in the Twin Cities**

In June of 2019, the Trump Administration proposed a policy that could result in three million people losing access to food stamp benefits. The Supplemental Nutrition Assistance Program (SNAP), formerly food stamps, is a governmental food aid program designed to help low-income individuals and families combat food insecurity across the country. According to Minnesota Hunger Solutions, in 2017, 9.5% of Minnesota households were food insecure. In the Twin Cities, SNAP benefits have been accepted at a selection of farmers' markets since 2003 in order to improve accessibility of fresh, local produce. This paper utilizes a mixed method approach, including qualitative interviews with SNAP participants and key informants, to evaluate the effectiveness of SNAP in the context of three farmers' markets in the Twin Cities. While research in this field has examined various individual and community coping strategies used to combat food insecurity, little work focuses on the link between SNAP and farmers' markets as one option for providing local, healthy and affordable food. This paper implements both a broad political ecology framework to analyze the history and implementation of food assistance, and embodiment geography to examine the individual experience at farmers' markets. Preliminary findings demonstrate the need to provide more comprehensive information to low income shoppers about the restrictions of SNAP, while also ensuring adequate accessibility to farmers' markets. This research seeks to highlight the applicability of political ecology and embodiment geography to understand relationships at farmers' markets and enhance food policy.

Honors Project in Geography  
Advisor: William Moseley  
Geography Department

\*\*\*\*\*

**Robert Joseph Angarone**

**Natural Connections between TSSCPP and Preference Orderings via Triangular Families**

This project further explores the connections between preference orderings and objects equinumerous with totally symmetric self-complementary plane partitions (TSSCPPs), as first discovered in a paper by Beveridge et al. First, we use a method first employed in that paper to find natural bijections between six different families of integer arrays known to be in bijection with TSSCPPs. Then we introduce a new family of objects in bijection with TSSCPPs called stack set triangles (SSTs). Using SSTs, we also present a method for decomposing monotone triangles into sequences of permutations, leading to a new family of objects in bijection with alternating sign matrices (ASMs). This connection provides several potentially exciting insights into the ASM-TSSCPP divide.

Honors Project in Mathematics, Statistics and Computer Science  
Advisor: Andrew Beveridge  
Mathematics, Statistics and Computer Science Department

\*\*\*\*\*

**Abraham Benjamin Asher**

**(Re-)Making the State: Religious Zionism, Religious Violence, and Israel in the 21<sup>st</sup> Century**

Israel's triumph and seizure of land in the Six-Day War paved the way for a religious Zionist movement based around territorial conquest exemplified by the ideology of Meir Kahane. Over the next 30 years, but particularly during the Oslo period in the mid-1990s, that movement organized and used targeted religious violence to gain power and solidify its place in Israeli society. Building on Shaul Magid's work, I propose that Kahane's ethics of violence have been adopted by or allowed to flourish within the modern State of Israel — a response to historic and present Jewish precarity centered on ethnocentric survival.

Honors Project in Religious Studies  
Advisor: William Hart  
Religious Studies Department

\*\*\*\*\*

**Camille Shapiro Baker**

**The Effects of the Minimum Wage on Social-Safety-Net Dependence Over Time**

Although there is much research on the effects of minimum wage increases on workers and low-income families, there is little that investigates how these effects persist or dissipate over time. Using an event-study specification, I investigate how minimum-wage changes affect family incomes at various multiples of poverty, as well as eligibility for and participation in the Supplemental Nutrition Assistance Program (SNAP). I compare the latter effect to that obtained from a state panel regression approach used in previous literature. I find evidence that minimum-wage increases reduce the prevalence of low family income and SNAP participation, but that these effects dissipate by 5 quarters post-increase. At its peak, the effect on SNAP participation is similar in size to that obtained from a state-panel specification.

Honors Project in Economics  
Advisor: Sarah West  
Economics Department

\*\*\*\*\*

**Makayla Ann Barker**

**Colonial Legacies and Institutional Legitimacy: Explaining Variation in State-Level Informal Economy Size**

Why are some states' economies more formal than others? This question has critical significance for policy-makers who endeavor to tap into the reservoir of tax revenue and entrepreneurship that informal economies contain. More importantly, large informal economies inhibit public good provision and perpetuate the impoverishment, marginalization, and political instability of select communities. Despite major variation in the size of informal economies across states, most scholarship on the informal economy concentrates only on the causes and consequences of the phenomenon while neglecting to address its variation. This thesis builds on a canon of scholarship surrounding colonial legacies, new-institutional economics, and institutional legitimacy by advancing the novel theory that informal economy size is contingent on economic dualism stemming from the colonial period and post-colonial state legitimacy. I employ a regression analysis and three West African case studies, Senegal, Cote d'Ivoire, and Cabo Verde, to evaluate this claim. These findings broaden our understanding of the informal economy and offer new insights for addressing its consequences.

Honors Project in Political Science  
Advisor: Lisa Mueller  
Political Science Department

\*\*\*\*\*

**Andra-Ecaterina Boca**

**Does Female Control of Resources Influence Remittance Response to Income Shocks? The Case of Albania**

Recent literature on migration addresses how gender significantly impacts remittance use. While gender and post-shock behaviors around remittances have been largely addressed separately, this paper investigates how income shocks affect remittances received by female and male-headed households differently. Using a nationally representative sample for Albanian families receiving remittances over three different years, I find that the cumulating number of income shocks a household goes through significantly affects the probability and the amount of remittances received, with heterogeneous effects depending on the gender of the household head. Consistent with previous literature, female-headed households see a drop in remittances with cumulating income shocks, while male-headed households experience a noted increase.

Honors Project in Economics  
Advisor: Amy Damon  
Economics Department

\*\*\*\*\*

**Margaret Emma Breen**

**The Tensions of Mobilizing Emergent Tactics: Lessons from the Standing Rock Occupation**

In the fall of 2016, upwards of 10,000 people participated in a six-month-long occupation in Standing Rock, North Dakota, to resist the Dakota Access Pipeline due to its environmental impacts, and violation of Native treaty rights. What sparked this tactical innovation? And what dilemmas arose from this strategy? To answer these questions, I interviewed water protectors who participated in the occupation, and analyzed interview records with movement leaders. I conclude that the movement's limited resources led to innovative tactics that took the form of a prefigurative political community. This created tension because prefigurative communities are intentionally designed whereas tactical innovation is emergent. Three primary dilemmas arose: cultivating community among thousands of strangers, the complexities of welcoming everyone and anyone into the camp, and implementing a non-hierarchical leadership structure.

Honors Project in Sociology  
Advisor: Erika Busse-Cardenas  
Sociology Department

\*\*\*\*\*

**Claire Louise Buehler**

**Refusing Welfare Gains: A Study of FDA Import Refusal Practices in the United States**

Recent research has shown that Sanitary and Phytosanitary (SPS) measures can act as barriers to trade, particularly impacting developing countries. This work analyzes the role of FDA import refusals as barriers to trade, particularly identifying their impacts on the US. This paper builds a theoretical framework based on the Specific Factors model in order to show that increased enforcement of SPS measures increases prices and decreases welfare. The analysis finds that on average increases in the probability of refusal have zero effect, but for some industries increases in the probability of refusal lead to decreased import values, which indicates welfare losses from this barrier to trade.

Honors Project in Economics  
Advisor: Felix Friedt  
Economics Department

\*\*\*\*\*

**Alyssa M. Bulatek**

**Design and Modal Analysis of an Ultra-Wideband Receiver for Green Bank Observatory**

The next generation of radio receivers for astronomy will be marked by tenfold improvements in sensitivity. These sensitive receivers will be useful for the detection of broadband fast radio bursts and other transients as well as the efficient discovery of radio recombination lines among many other scientific pursuits. One contribution to these improvements is an increase to decade receiver bandwidths. The Green Bank Observatory (GBO) is currently in the process of fabricating a new ultra-wideband (UWB; 0.7 to 4.2 GHz) receiver for the Green Bank Telescope (GBT). The UWB receiver will be used by the North American Nanohertz Observatory for Gravitational Waves (NANOGrav) to perform pulsar timing experiments using the GBT with greater sensitivity than before. The design of the receiver features a quad-ridged, flared feed horn and utilizes a corrugated skirt and a quartz spear to extend the receiver's bandwidth to 6:1. Through modeling and performance simulation, we find the predicted efficiency of the receiver to be around 60 to 70% at lower frequencies and above 50% at higher frequencies. The  $S_{11}$  values for the UWB receiver are better than  $-10$  dB across the entire bandwidth, and performance is only predicted to degrade slightly at 2.8 GHz with the inclusion of a waveguide window.

In an effort to determine the potential cause of reduced efficiency as a function of frequency, we perform an analysis of waveguide mode excitation to determine the concentration of higher-order mode excitation in the aperture of the receiver. Preliminary results suggest that higher-order mode (i.e.  $TM_{12}$  and  $TM_{13}$ ) excitation is present at higher frequencies, but we cannot conclude that it is the sole cause of reduced feed efficiency at those frequencies.

Honors Project in Physics and Astronomy  
Advisor: John Cannon  
Physics and Astronomy Department

\*\*\*\*\*

**James Michael Cannon**

**Electrical Measurement of SRAM Cell Variation and Sensitivity to Single-Event Upsets by Low-Energy Protons**

With the rise of the transistor in the 1970s, electronics shifted from analog circuitry where values are stored on a continuum to digital in which ones and zeros are the law of the land. Transistors, as a class circuit element, can be affected by radiation and cosmic rays which then cause temporary or permanent failures, depending on the specifics of the situation. On Earth, this poses little risk with all electronics shielded by the magnetosphere, however for space bound electronics, the risk from these extraterrestrial particles are not so negligible. The first step in designing a mission to be able to survive upsets from energetic particles is to understand how these particles affect all the devices of a space-bound circuit. While this characterization historically assumes constant behavior across one chip, in this senior honors thesis I present an electrical characterization of cell level variations in upset probability by low-energy protons for a specific class of digital chip: SRAM. This characterization is possible because of random process variation in the manufacturing of the underlying transistors that is then responsible for variation in the critical charge to upset for each cell of an SRAM. The results of the electrical characterization are then related to upset data acquired by irradiating chips at the Vanderbilt University Pelletron. These data are used in conjunction with the cell level electrical characterization to discuss the effects of virtually screening out cells with higher probability to upset.

Honors Project in Physics and Astronomy  
Advisors: James Doyle and Thomas Finzell  
Physics and Astronomy Department

\*\*\*\*\*

**Julia May Carpenter**

**Attributions or Dangerousness: Political Attitudes and Mental Illness Stigma**

Research has found a link between political attitudes and mental illness stigma—specifically, that individuals high in right-wing authoritarianism (RWA) express greater stigma toward people with mental illness (DeLuca et al., 2018). This study explores the reasons why individuals high in RWA express more stigma toward people with mental illness. Study 1 explored two possible explanations: Attribution Theory (Weiner, 1995) and the Dangerousness Model (Corrigan et al., 2002). The results suggested that individuals high in RWA expressed greater stigma, but a difference in mediators emerged across the type of mental illness. For depression, personal responsibility and perceived dangerousness fully explained the relationship between RWA and mental illness stigma; for schizophrenia, only perceived dangerousness explained the relationship. Study 2 explored the reasons for the different mediators, hypothesizing that political differences in stigma may be due to different interpretations of the causes of illnesses. Psychosocial causes such as family, work, and financial stress and biogenetic causes such as genes and hereditary factors were considered. Cause and illness were manipulated between subjects. The results indicated that cause was not a significant predictor of stigma, however, type of illness was a significant predictor. Further, the relationship between RWA and stigma was insignificant, suggesting political attitudes are only related to stigma under certain conditions. Future research should explore the conditional aspects of this relationship.

Honors Project in Psychology  
Advisor: Cari Gillen-O’Neel  
Psychology Department

\*\*\*\*\*

**Jeremy Kenneth Colton Chamberlin**

**The Possibilities of Considering Bodily Alterations as Potentially Being Rhetorical for Individuals**

This thesis concerns the implications for individuals of the idea for which it argues: that modifications of the body can be a form of rhetoric if they shape the self when it is invested in the modifications. This is not a traditional conception of rhetoric, but it unifies much of what people have written about bodily modifications having meaning by starting with a minimal definition of rhetoric, that it requires a delimited attempt by a rhetor to shape meanings. Primarily, this thesis considers the agential possibilities, and lack thereof, of the denaturalization that comes with thinking of something as being rhetorical, of making it not necessarily so. In doing so, it places this agency within an existential ethics of the self that values people being at liberty within society and politics to authentically develop their selves. In order to do this properly, the thesis delimits the conditions of bodily modifications constituting rhetoric, including who can be a rhetor, and the scope of this rhetoric, including by emphasizing that this rhetoric is still a material action. In considering the utility of this idea's use for analysis, considering how messy reality is, it proposes a pragmatist razor, that this concept of rhetoric should only be used if it helps produce cogent analysis or reflection.

Honors Project in Political Science  
Advisor: Althea Sircar  
Political Science Department

\*\*\*\*\*

**Jeremy Kenneth Colton Chamberlin**

**“Derivatization,” Respect, and an Aesthetical Ethics of Considered Film Viewership**

This thesis concerns an alternative to “objectification”, Ann J. Cahill’s “derivatization” – in which people are reduced to and determined by the desires and needs of others, instead of being treated as objects, as “objectification” describes actions – and considers its usefulness for film criticism and an ethics of engaging with films. Arguing that a fundamental respect, for other people as being their own persons, is implicitly fundamental to both “objectification” and “derivatization”, and is what gets violated in the actions described by these concepts, the thesis considers how the respect and derivatization can manifest in films and film viewership, along with the ambiguities that come with viewer agency. Films rhetorically shape how we should and can relate to people who appear to be within them, and this is a foundational element of film art. For viewers, the foundational question concerns how engagements with films, things that cannot be harmed, can have ethical significance, and the answer lies in how films can shape the self. This means that engagements with films can be a part of a reflective ethics of the self – in the senses of one developing one’s self and considering how that development shapes one’s behavior towards those who can be harmed – that can make use of the concepts of “derivatization” and the fundamental respect.

Honors Project in Women’s, Gender, and Sexuality Studies  
Advisor: Xin Yang  
Asian Studies Department

**Earl Chase**

**Les Gilets Jaunes et l'inégalité économique en France OR The Gilet Jaunes and Economic Inequality in France**

Dans cette analyse, on discutera des contextes politiques et socio-économiques qui expliquent le mouvement de Gilets Jaunes. On étudiera en particulier la culture du travail en France ainsi que la crise de la dette publique. Après, on fera une évaluation économique des mandats de Nicolas Sarkozy, François Hollande et Emmanuel Macron. En utilisant notre savoir sur la situation, on va explorer ce que le mouvement révèle : l'inégalité économique. On terminera notre analyse en étudiant les implications de l'inégalité économique avant de proposer de solutions.

In this analysis, I will examine the political and socio-economic context that led to the rise of the Gilets Jaunes movement in France. First, I will complete a general analysis of work culture in France and assess France's response to the European Debt crisis. Building off of this context, I will complete an economic evaluation of the presidential terms of Nicolas Sarkozy, Francois Hollande and Emmanuel Macron. Finally, using my knowledge of France's political and social context, I will arrive at the root of the problems facing French society and the key motivating factor of the Gilets Jaunes movement: economic inequality. I will finish my analysis with a study of the implications of economic inequality in France before proposing solutions.

Honors Project in French and Francophone Studies  
Advisor: Joëlle Vitiello  
French and Francophone Studies Department

\*\*\*\*\*

**Sarah Chinski**

**Band Extension and Possible Ridge Compression on Europa**

Jupiter's icy moon Europa has captivated and perplexed the scientific community since the discovery of its global liquid water ocean and active plate tectonics on the surface. In this work, we examine the hypothesis that the volume of ice created through band extension can be compensated for through destruction of ice at compressional features. In order to study this hypothesis, we map and measure bands and ridges to create surface area and volume estimates in four regions comprising approximately 4.62% of Europa's total surface area. This work was completed on a global mosaic of Europa that contains moderate resolution images from the Galileo spacecraft. From our results, we may be able to draw important constraints on the thickness of the outer ice shell, which has been highly debated amongst scientists for decades.

Honors Project in Physics and Astronomy  
Advisor: John Cannon  
Physics and Astronomy Department

\*\*\*\*\*

**Dio Cramer**

**From Soap to Cities: Biomimicry as a Tool for Mindful Design in the Anthropocene**

The challenges of the Anthropocene call upon all of us as creatives, designers, and scholars to design new methods of survival. I seek to explore how the process of design, broadly conceived, can solve vital problems, improve human and non-human lives, and even benefit the planet we share. This work, presented as an illustrated manifesto, draws upon literature in the study of the Anthropocene, biomimicry, and design thinking in order to create a set of design rules, which I call *mindful design*. Heavily influenced by geographic context, mindful design is adaptable to feedback and prioritizes the overall health of the Earth and its inhabitants. Biomimicry is a more recent term for the long-established practice that draws inspiration from the natural world in order to guide human-made design. My work explores both the potential and the limitations of the field as a tool for problem-solving design in the Anthropocene. I put these design rules into practice in a visual book, combining writing with photographs, diagrams, and comic-style illustrations to accessibly communicate my ideas to a broader audience. Mindful design is an ever-important tool that now holds even more weight in moving us closer to, or further from, the predicted futures of climate catastrophe in the Anthropocene.

Honors Project in Geography  
Advisor: Eric Carter  
Geography Department

\*\*\*\*\*

**Jesse Clarke Crosby**

**Justice Without Access: Indigenous Struggles for Human Rights in Peru**

Why have indigenous peoples in Latin America been unable to access protections provided by international human rights? This paper analyzes the representation of indigenous peoples in international systems of human rights and the limits of indigenous access to international justice. Based on field research conducted in the Madre de Dios region of Peru, I argue that despite significant gains in indigenous representation, most indigenous peoples remain unable to access international rights courts due to the high cost of pursuing a case, time required, distance from the courts, and lack of awareness of rights protected by documents such as ILO 169 and the UNDRIP. Furthermore, when indigenous peoples or advocates reach these bodies, the effects often take years if not decades to fulfill, if they are fulfilled at all. In my study I use three case studies: The Amarakaeri and Wampis cases represent primarily success stories where indigenous rights of self-determination and FPIC were upheld and the community of Tres Islas success has been achieved in terms of self-determination, but fighting continues to provide health protections.

Honors Project in Political Science  
Advisor: Paul Dosh  
Political Science Department

\*\*\*\*\*

**Jasmine Davidson**

**Time to Play: The Relationship Between Time Spent Playing and Educational Outcomes in Peru**

Little research has been done on how *quantity* of play impacts a child's life outcomes. Using longitudinal data from the Young Lives Survey in Peru, I analyze how time spent playing at age five is related to test scores and grade level at age fifteen. I find little evidence of a strong relationship. However, I do find that more play is related to better math scores for children in the lowest wealth quartile, and lower educational attainment for children in the second-lowest wealth quartile – suggesting a relationship, but only for particular populations. Further study is needed to untangle these relationships.

Honors Project in Economics  
Advisor: Amy Damon  
Economics Department

\*\*\*\*\*

**Autumn Jeanne DeLong**

**Making Home: Spirituality through Migrants' Eyes**

This honors project is based upon ethnographic research conducted with Mexican Catholic migrant women living in Minneapolis, Minnesota, and Q'ero indigenous migrants living in Cusco, Peru. I explore the role of these two communities' spiritual practices and traditions in defining and reinforcing their sense of identity, beginning a discussion of religion's role in alleviating the difficulties of migration and placing meaning in that experience. I aim to communicate these migrants' stories as they shared them with me originally, emphasizing the centrality of their spirituality and worldview in defining their sense of identity apart from that of greater society. I suggest that migrants have a particular need for a sense of belonging in the midst of cultural change, and I emphasize that their experience of spirituality relies more upon the fleshiness and earthiness of this world. In their rituals, these migrants draw upon an experience of the sacred manifest through performance, discipline, and practice, more so than through belief, faith, or intellectualism.

Above all, this project centers around the stories we tell in our lives – not as scholars, but as human beings. It stems from an attempt to understand the existential challenges which define our lives, using the experience of migration as a site from which we might begin that journey. It is an opportunity to interrogate how our lives are marked not only by the difficulties we experience, but also by the ways we choose to respond to these challenges. As a religious individual myself, I have long wondered what allows us to remain hopeful in the midst of existential change and challenge. For me, this project has been a path through which I have begun to understand the way these existential changes define and re-define our livelihoods and our identities.

Honors Project in Religious Studies  
Advisor: James Laine  
Religious Studies Department

\*\*\*\*\*

**Ignasi Dorca**

**Is Egalitarianism a Conception of Justice?**

This paper sheds some light on the following question: is achieving the normatively significant form of equality sufficient for achieving justice? While I do not offer a definitive answer to this question, I argue that an affirmative answer is not very plausible. To be more concrete, I argue that neither distributive nor relational conceptions of equality always align with the demands of justice. By this, I mean that these conceptions of equality sometimes either cannot tell us why certain unjust states of affairs are objectionable or can tell us that just states of affairs are actually, in at least one sense, objectionable. From this fact, I conclude that egalitarianism is likely best understood as something other than a conception of justice.

Honors Project in Philosophy  
Advisor: Samuel Asarnow  
Philosophy Department

\*\*\*\*\*

**Isaiah Eckart-Frank**

**Cu(I) Interactions with Zinc Finger Proteins: Disruption of Zinc Binding Sites in the RING Domain of XIAP and BRCA1**

Copper is an essential, but potentially toxic trace metal in biology. Therefore, organisms have evolved complex mechanisms to maintain safe cellular copper levels. One key player in copper homeostasis is X-linked inhibitor of apoptosis protein (XIAP), which uses its zinc containing RING domain to regulate cellular copper efflux. This thesis explores the interaction of Cu(I) with XIAP to investigate its molecular mechanism. In this project, XIAP-RING was successfully purified and characterized. UV-Vis and fluorescence spectroscopy methods were used to study the interactions between XIAP-RING and Cu(I), which showed that Cu(I) displaces Zn(II) bound to XIAP-RING with a ratio of two Cu(I) to one Zn(II). Further studies to investigate the effects of Cu(I) displacement on XIAP-RING indicate that Cu(I) disrupts the dimeric structure of XIAP-RING. These studies help to better understand how XIAP might regulate copper and provide insight into how copper interacts with native zinc proteins.

Honors Project in Chemistry  
Advisor: Kathryn Splan  
Chemistry Department

\*\*\*\*\*

**Ruby Pandora Natya Elliott Zuckerman**

**guilt free homecoming**

*guilt free homecoming* is a multimedia drawing 7ft x 10ft. The drawing focuses on a socialist, Yiddish-speaking coop as a site to ask questions such as: how important is physical space to historical understanding? And how does the emotional quality of a traumatic past get transmitted? These questions are relevant for an Ashkenazi diasporic experience, where histories have had to be transmitted through storytelling and memory without a stable home country. I explore these questions through charcoal and ink drawing, screen printed photographic imagery, and textual layering. My piece attempts to both memorialize and critique the escapist nature of nostalgia, understanding that memory is always an imperfect construction.

Honors Project in Art & Art History  
Advisor: Megan Vossler  
Art & Art History Department

\*\*\*\*\*

**Jennifer Eng**

**Do Community Factors Influence Business Outcomes? A Look in Asian Enclaves in San Francisco and Los Angeles**

Ethnic enclave economy theories and literature have long-studied factors that impact ethnic entrepreneurs outcomes, but they mainly focus on individual firm profitability. Community-level characteristics are not considered to be at the forefront when studying enclave economies, despite dominant collectivist ideology in Asian cultures. This paper provides a different approach to measuring firm formation and closure rates. Using census tract data and registered business data between 2010 and 2018 in San Francisco and Los Angeles, I measure whether community factors play a role in business outcomes and if those variables are also present across Black and Latinx enclaves. I find that many of the community factors do influence the rate of business closure and formation, but certain factors vary across enclave types and geographies.

Honors Project in Economics  
Advisor: Samantha Çakir  
Economics Department

\*\*\*\*\*

**Emma Elizabeth Erikson**

***Four Rocks***

*Four Rocks* integrates a community of moss and lichen onto four large-scale drawings of coupled figures drawn to resemble the basalt boulders of the Columbia River Gorge. These organisms obfuscate the divisions between the figures, embodying the inextricable role our relationships play in the formation of self. The four diptychs can be reconfigured into various combinations. Physically changing the work's composition disrupts the figures' realism, replicating the necessary discomfort of being known intimately by others. The work's basis in a specific geography rendered from memory interrogates memory's influence on our conception of self and our ability to connect with others.

Honors Project in Art and Art History  
Advisor: Megan Vossler  
Art and Art History Department

\*\*\*\*\*

**Francesca Guglielmono Gillis**

**Ancient Foodies: Modern Misconceptions, Alternative Uses, and Recipes for Food in Ancient Rome**

Over the years, food has always tended to reflect a specific society and its cultural values. This phenomenon is demonstrated in Roman cuisine which is well documented thanks to the text of authors and material culture. In this paper, I analyze five protein sources (thrush, peafowl, mullet, dormice, and Mediterranean moray) which Romans often consumed. Using modern anthropological theory, I analyze this foodstuff using the contrasting principles of public/private, import/domestic, and consumption/other in order to determine the societal implications of the ingredient. This analysis has revealed that these five animals had multiple uses and implications in the Roman world far beyond their use in cuisine.

Honors Project in Classical Mediterranean and Middle East  
Advisor: Andrew Overman  
Classical Mediterranean and Middle East Department

\*\*\*\*\*

**Emma Ross Higgins**

**Behind the Legislation: Where, Why, and How American Parental Rights Laws Fail Victim Mothers**

Currently, every state but Minnesota has legislation to terminate the parental rights of rapists. However, legislation varies considerably from state to state with respect to timing and scope. Incongruities across the country beg the question: What accounts for these legislative differences? In this paper, I consider how a state's favorability to women, partisan divides, ideology, and policy-making context (*focusing events* and *framing*) influence legislation's presence and scope. I find that focusing events have played a significant role in putting this legislation on the agenda. Depending on a state's partisan make-up, national focusing events may be more compelling than state-wide (or vice versa). The manner in which the issue is framed similarly hinges on whether a state is more socially ideologically liberal or conservative.

Honors Project in Political Science  
Advisor: Lesley Lavery  
Political Science Department

\*\*\*\*\*

**Julia Caroline Hirsch**

**“Cameroon is Bilingual, but Cameroonians are not Bilingual:” The Importance of the Translation of *Nayang, Bantu King* in a Multilingual Country**

In this dissertation, I translated two excerpts of the memoir *Nayang, Roi Bantou*, written by the King of Batoufam, Cameroon and wrote a critical essay to accompany the translation. I argue in my essay that I chose to translate this book and these two chapters specifically because they show the coexistence of tradition and modernity that is happening in Batoufam. This is important for the whole world to know, and thus the translation of this book gives this essential information. The messages of the book serve as a case study that can be applied to other African cultures. I used my positionality as an American student who studied in Batoufam to take the opportunity to build a bridge between the Batoufam culture and the Western world by choosing specific methods that I saw as necessary. In the critical essay, after giving an in-depth examination of the situation of bilingualism in Cameroon due to its political history, and the role of translation in this, I say that this translation, and others like it in the future, can unify people coming from different linguistic groups by making the text accessible to more people. However, despite this, translation is not completely able to create full bilingualism in Cameroon.

Honors Project in French and Francophone Studies  
Advisor: Juliette Rogers  
French and Francophone Studies Department

\*\*\*\*\*

**Charlotte Esther Houghton**

**Opinionated Poets, Opinionated Lovers: Callimachus and Martial on Social and Sexual Behavior**

This paper examines ancient conceptions of social behavior, using the works of two epigrammatists, Callimachus and Martial. Both poets lived under empires (Ptolemaic and Roman, respectively), and their writing engages with ideas of imperial power. I argue that Martial and Callimachus reinforce ideas of proper social behavior under empire, especially in the ways that imperial and public opinion influenced the expected behavior for women and sexual conduct of people of all genders. The epigrams themselves are evidence of these behavioral precepts, and epigrammatic tendencies aid in their interpretation. This paper provides a better sense of society's behavioral expectations, bringing us closer to understanding ancient daily life.

Honors Project in Classical Mediterranean and Middle East  
Advisor: Nanette Goldman  
Classical Mediterranean and Middle East Department

\*\*\*\*\*

**Peter Johannes Jarka-Sellers**

**The Effects of Highly-charged, Civilian-centered Events on American Foreign Policy and the Soviet-American Relationship**

This honors thesis examines the role of highly charged, highly covered, and civilian-centered international events in the early Cold War's development (1945-50). It does this through the case study of American students Peter Sellers and Warren Oelsner, who spent two months in Soviet military captivity in East Germany in 1949. Their case received substantial media coverage and the US government eventually obtained their release. By looking at a combination of government documents, newspaper articles, an account written by Oelsner, and scholarship on public and elite opinion, I find that although no single event of this magnitude had a significant effect on the early Cold War, the evidence suggests that repeated over time, these events had a meaningful yet modest influence, as American elites developed increasingly less favorable views of the Soviet Union, seeing it as an existential threat and the American public increasingly viewed it as a cruel and dangerous adversary.

Honors Project in International Studies  
Advisor: Nadya Nedelsky  
International Studies Department

\*\*\*\*\*

**Clare Katherine Trone Johnson**

**Late Holocene Paleofire Reconstruction of the Many Glacier Region, Glacier National Park, Montana, USA**

Paleofire intensity and recurrence reflects a complex response to climate such as summer air temperature, precipitation patterns, and wind speed, and fuel source (vegetation). To better predict future trends in fire frequency, I examined fire history over the past ~4000 years by quantifying charcoal fragment concentrations in lake sediment cores from Swiftcurrent Lake, eastern Glacier National Park, Montana. Preliminary results show two distinct periods of high fire activity from ~3,100 to 2,600 yr BP and ~1,900 to 1,400 yr BP. This is consistent with other paleofire records in the western US.

Honors Project in Geology  
Advisor: Kelly MacGregor  
Geology Department

\*\*\*\*\*

**Sophia Thérèse Jones-d'Entremont**

**Written in Ink, Written in Spirit: 2 Corinthians 3 and Pauline Interpretation**

This paper argues for a reassessment of the third chapter of Paul's Second letter to the Corinthians. This passage has historically been understood as both declaring Torah law obsolete and arguing for an allegorical approach to reading scripture. This paper recontextualizes 2 Corinthians 3 in Paul's ancient context and proposes that it is instead a voice in the debate over whether Gentiles should observe Mosaic law or not. Paul argues that they do not need to, due to both the new covenant in Christ and the fast-approaching apocalypse. This paper starts with an examination of Paul's context, comparing him to his contemporary Philo, and the context in which the Corinthian epistles were penned. It then looks at how the writings of Origen of Alexandria and John Chrysostom helped popularize a supersessionist understanding of the text by decontextualizing Paul from his original context and placing him in theirs. The paper concludes by proposing continued efforts to understand Paul's writings within the context in which they were written.

Honors Project in Religious Studies  
Advisor: Susanna Drake  
Religious Studies Department

\*\*\*\*\*

**Julia R. Joy**

**Red Letter Day**

This collection of poems interrogates, converses with, represents, and gives language to the phenomena of abuse and manipulation. Employing metanarrative and a background in linguistics, this project engages language, the idea of language, weaponizing it. I attempt to subvert the emerging genre critically referred to as “trauma porn,” and instead embody the experience of domestic abuse in all its gross complexity. This collection risks melodrama, but hopefully just risks it.

While experiencing abuse and its aftermath, one’s headspace is simultaneously such a narrow drilling, and so multifaceted. Every day, most thoughts, interactions, are a mental act of acrobatics. In this collection, the halves of my head sleep cleaved, their backs to each other. They try not to wake each other up. Clarity is so tired, and Staying such a light sleeper. *Red Letter Day* ties in concepts of faith, worship, domesticity, foundations and restoration, to point to the questions “Why did you stay?” “What would have made you go?”

Honors Project in English  
Advisor: Marlon James  
English Department

\*\*\*\*\*

**Samir Knego**

**The Catholic Spirit: Music, Media, Miracles and the Brazilian Catholic Charismatic Renewal**

This project examines the Brazilian Catholic Charismatic Renewal (CCR) and its ambivalent relationship with power. The CCR movement is visible and well-known in Brazil and has connections with Brazilian pop culture, liberation theology groups, and Pentecostalism. Despite this popular presence, it remains excluded from formal avenues of Catholic power like Church meetings and institutional representation. Around 27% of Brazilian Catholics identify as Charismatics, but 56% of Brazilian Catholic churchgoers report occasionally seeing Charismatic practices in church, which speaks to the way that, as I argue, the CCR is bringing about changes in what is considered mainstream or acceptable Catholic expression in Brazil.

Honors Project in Religious Studies  
Advisor: Susanna Drake  
Religious Studies Department

\*\*\*\*\*

**Samantha A. Leo**

**Refilling the Reservoir: How the Supreme Court has Responded to Challenges to its Legitimacy**

To protect the United States Supreme Court’s institutional status, justices on the bench must grapple with threats to the Court’s authority. How do members of the Supreme Court preserve their legitimacy? This thesis employs a historical analysis to evaluate responses to legitimacy challenges over time. Similar challenges impact the Supreme Court across various eras. Judicial responses build upon each other, and develop a stronger judiciary as time passes. In this light, I emphasize the historical continuities within the actions of the Roberts Court. There are many prior tools the current institution may implement to refill its reservoir of public support.

Honors Project in Political Science  
Advisor: Patrick Schmidt  
Political Science Department

\*\*\*\*\*

**Ethan Nosanow Levin**

**"To Bloom in Empty Space": An Introduction and Commentary on the Petichta to Esther Rabbah**

The petichta to *Esther Rabbah* (c. 6<sup>th</sup> century CE) reflects a pessimistic rabbinic response to the physical and theological displacement of the Jews in an increasingly Christianized Roman Palestine. Using the covenantal curses (specifically Deuteronomy 28 and Leviticus 26) as a frame, the rabbis situate the book of Esther and their current socio-political context into the rabbinic paradigm of the Four Kingdoms, representative of ongoing imperial oppression. According to *Esther Rabbah*, Jews living under Roman rule—even those in Palestine—are living in a state of “exile” characterized by the ongoing impact of the covenantal curses. For the rabbis, Israel cannot flourish as God’s chosen people under these exilic conditions, which will culminate in the kind of state-sanctioned annihilation of Jewry that appears in Esther. The Midrash arrives at this theo-political worldview by reading Esther as a narrative of subjugation to the covenantal curses. In presenting their current oppression as a recapitulation of the oppression suffered in Esther, the rabbis interpret the Torah’s covenantal curses as a necessary precursor to divine salvation under Rome.

Honors Project in Religious Studies  
Advisor: Nicholas Schaser  
Religious Studies Department

\*\*\*\*\*

**Meng Luo**

**Extended Heteroacene Chromophores Derived from a Non-linear Aromatic Diimide**

Aromatic diimides make up a common class of molecular organic semiconductor materials. With modifications to the aromatic core and the imide functional group, interesting optical and electrochemical properties can be achieved from the parent compounds. However, minimal research has been done on the smallest benzene diimides. Here, we report the synthesis of an unexplored non-linear aromatic diimide motif mellophanic diimide (MDI), which underwent nucleophilic substitutions to afford several heteroacene chromophores. These hetero- and azaacenes were investigated through UV-vis and fluorescence spectroscopy, and density functional theory calculations. The MDI derivatives were found to exhibit high molar absorptivities (up to  $39,700 \text{ M}^{-1} \text{ cm}^{-1}$ ), high quantum yield (up to 72.2%), narrowed bandgaps (down to 2.0 eV), and significantly lowered LUMO levels (down to 4.5 eV).

Honors Project in Chemistry  
Advisor: Dennis Cao  
Chemistry Department

\*\*\*\*\*

**Alessandro Antúnez de Mayolo Mauceri**

**Variations in Soil  $^{87}\text{Sr}/^{86}\text{Sr}$ : Examining the Influence of Urbanization on the Geochemical Evolution of Eight Rapidly Urbanizing Watersheds in Austin, Texas**

Understanding urbanization impacts on the natural hydrologic cycle is imperative for maintaining resilient freshwater resources, especially as the growing global population concentrates in urban centers and as climate extremes continue through the 21st century. This study uses the ratio between strontium-87 and strontium-86 ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) to understand the influence of municipal water and soil on urban stream water compositions in eight Austin, Texas watersheds. Elevated  $^{87}\text{Sr}/^{86}\text{Sr}$  values in urban stream waters are hypothesized to be modulated by either 1) leakage of municipal water pipes and/or irrigation runoff, or 2) by interacting with naturally elevated soil  $^{87}\text{Sr}/^{86}\text{Sr}$  values, both of which exhibit higher  $^{87}\text{Sr}/^{86}\text{Sr}$  values than the Cretaceous limestone which the studied streams incise. Here we determine  $^{87}\text{Sr}/^{86}\text{Sr}$  values for both irrigated and unirrigated soils, and compare results to municipal water, soil type, mineralogy, and the degree of urbanization within each watershed.

Honors Project in Geology  
Advisor: Anna Lindquist  
Geology Department

\*\*\*\*\*

**Riley Anne McGlasson**

**Shape Model of Potentially Hazardous Asteroid 1981 Midas from Radar and Lightcurve Observations**

We report observations of potentially hazardous, Apollo-class asteroid 1981 Midas, which passed 0.090 au from Earth (35 lunar distances) on March 21, 2018. During this close approach, Midas was observed by radar both from the Arecibo Observatory on March 21 through 25 (five nights), and from NASA’s Goldstone Deep Space Communications Complex on March 19 and 21. These radar observations yielded one-dimensional continuous-wave spectra and two-dimensional delay-Doppler images. In addition, there have been optical lightcurve observations of Midas during four apparitions (1987, 1992, 2004, and 2018), which showed a rotation period of 5.22 hours. Midas has an absolute magnitude of  $H = 15.2$ . By combining the lightcurves and radar data, we have constructed a shape model for Midas. This model shows that Midas has two lobes separated by a neck which, at its thinnest point, is about 60% of the width of the lobes. From our model, we also confirm the lightcurve-derived rotation period and show that Midas has dimensions of  $3.33 \times 1.99 \times 1.85 \text{ km} \pm 10\%$  and a pole position within  $6^\circ$  of  $(37^\circ, -61^\circ)$  in ecliptic longitude and latitude.

Honors Project in Physics and Astronomy  
Advisor: John Cannon  
Physics and Astronomy Department

\*\*\*\*\*

**Raven Isabella McKnight**

**Twin Cities Bus Ridership: A Spatial Bayesian Analysis**

Transit agencies often use simple models to predict transit demand. In this study, we explore a series of models for Metro Transit’s bus ridership in the Twin Cities region of Minnesota which potentially improve upon the current industry standard. Specifically, we implement Bayesian models which incorporate (1) demographic predictors; and (2) spatial components which are not often included in transit demand models. We consider regularized horseshoe priors to determine which demographic predictors are most relevant to ridership but ultimately do not include the shrinkage priors. We incorporate spatial structure using the BYM2, a reparameterization of the classical Besag-York-Mollié spatial Bayesian model. We present an application of the BYM2 to 2017 Metro Transit bus ridership. The BYM2 is an areal data model which uses an Intrinsic Conditional Autoregressive (ICAR) prior and allows us to build a more nuanced understanding of bus ridership. We discuss specific interpretations of the BYM2 for Metro Transit and the benefits of statistically rigorous models at transit agencies.

Honors Project in Mathematics, Statistics, and Computer Science  
Advisor: Alicia Johnson  
Mathematics, Statistics, and Computer Science Department

\*\*\*\*\*

**William Patrick McMahon**

**“Can you please get my family justice so we can rest in peace”: The Pat Finucane Centre’s ‘In Their Footsteps’ Archive and the Search for Truth and Justice in Northern Ireland**

In this project, I analyze the independent, community archive known as ‘In Their Footsteps’ within the Pat Finucane Centre, a human rights organization in Northern Ireland. I argue not only that the community archive is working to both reshape the collective memory of the conflict known as the Troubles and for truth and justice for families bereaved during that conflict, but is also contesting notions of what “the archive” is how and history can and should be done. I argue that by tracing the competing collective memories of the conflict, engaging with the stories contained in the archive itself, considering community archivization as a model for history more broadly, and illustrating the enduring impact of the past on the present in Northern Ireland.

Honors Project in History  
Advisor: Linda Sturtz  
History Department

\*\*\*\*\*

**Andrew Mizener**

**Probing the Magnetic Fields in Cosmic Web Filaments**

We present a project to constrain the properties of magnetic fields in Cosmic Web filaments. We first perform rotation measure (RM) synthesis on S-band Karl G Jansky Very Large Array observations of 24 moderate-redshift active galactic nuclei. These observations are combined with an existing catalog of Cosmic Web filaments in order to determine the number of filaments a given sight-line passes near or through. By tracking how observables such as rotation measure and polarization fraction change as a function of the number of intervening cosmic web filaments, we take the first steps towards providing observational constraints on the magnetic field strength within these structures. We find that the dispersion in RM increases as the distance between a line of sight and the filament closest to that line of sight decreases, suggesting that we are detecting a signal from magnetic fields within these structures.

Honors Project in Physics and Astronomy  
Advisor: Anna Williams  
Physics and Astronomy Department

\*\*\*\*\*

**Susanna Eloisa Morales**

**Cooking as Power: Agency in Central American Women’s Foodwork**

Performing foodwork – preparing, cooking, and serving food – is a cultural expectation families in the U.S. enforce on mothers. Gender norms instilled in the family institution socialize women to take care of their family members by cooking for them. Gender norms instilled in this social institution socialize women to take care of their family members by cooking for them. There is a narrative created by white and gendered cultural norms that portrays immigrant women as oppressed victims that do not have a say in how to engage in foodwork under the family institution. In addition, white U.S. American individuals often expect immigrant women to engage in cooking by either cooking and serving their families "all-American" food as a way to assimilate into white, U.S.-American culture, or only cook food from their country to express and sustain their heritage. These three narratives assume immigrant women to be submissive to gender norms, institutions, and cultural expectations. However, these narratives ignore the ways that immigrant women participate in foodwork while taking control of cooking practices. This research exposes the nuance behind foodwork by looking at how immigrant women navigate their family’s expectations and exert their agency in foodwork by deciding two things: when to cook and what to cook. In this process, immigrant women challenge the “cultural transmitter” and “assimilation” stereotype by engaging with food outside of their culture. To conclude, I explain how immigrant women offer a different perspective on the reasons why they do or do not perform foodwork. I challenge readers to question family cultural expectations imposed on immigrant women that create flat narratives of foodwork.

Honors Project in Sociology

Advisor: Erika Busse-Cardenas  
Sociology Department

\*\*\*\*\*

**Rina Morisawa**

**Sequencing Ultra-conserved Elements in New Zealand Mite Harvestman Genus *Rakaia***

*Rakaia* is the largest genus of family Pettalidae (Suborder Cyphophthalmi, Order Opiliones) in New Zealand; however, we have yet to grasp a complete understanding of their diversity because of limited sampling and old specimen age. I describe four morphological species from the Wellington area of New Zealand, identify novel cuticular structures previously not found in this genus, and generate a phylogeny of genus *Rakaia* by targeting ultraconserved elements (UCEs), which allow analysis of hundreds of genes across the genome from decades-old specimens and inference of species- to higher taxon-level divergences. This was the first attempt at using next-generation sequencing techniques for New Zealand mite harvestmen at the species level. I discuss the implication of using UCEs for this group, and identify future directions for utilizing these high-resolution phylogenies to test biogeographical hypotheses in the context of Gondwanan vicariance.

Honors Project in Biology

Advisor: Sarah Boyer  
Biology Department

\*\*\*\*\*

**Vincent Jones Mougin**

**The Impact of the Dakota Access Pipeline on the Location of Fracking in North Dakota**

The past few years have witnessed a heated debate on the construction of large pipelines for transporting crude oil, particularly as the development of fracking has created new production booms. While many argue that the risk of spills is too great to justify large pipelines, others contend that the alternative—transporting large volumes of crude oil by rail—entails a higher risk of spills and greater emissions. One question often overlooked is whether the construction of a pipeline changes the location of drilling within an oil-producing region. This question has implications for local pollution in particular, because if a region near a newly constructed pipeline experiences an increase in fracking, it will also experience an increase in the associated pollution. Given the uncertainties around the environmental damages associated with fracking, the stakes involved in producers’ choice of where to drill are potentially high. Using well-level production data from the Bakken region of North Dakota, this paper examines the effect of the Dakota Access pipeline on the location of fracking in ND. Using a difference-in-differences regression specification, I find that the completion of the Dakota Access Pipeline does not appear to have changed the location of drilling within the Bakken region.

Honors Project in Economics  
Advisor: Gabriel Lade  
Economics Department

\*\*\*\*\*

**Kieu-Giang Nguyen**

**Good Night?: Clustering Sleep Stage Data**

We developed methods to make meaningful clusters of Fitbit sleep data to capture variation in nights’ sleep. Existing dissimilarity measures do not account for the ordering, the timing, and the duration of sleep in successive states, so we propose period-dependent distances between probability distributions adapted for the cyclic nature of sleep. These methods provide unique information about sleep stage data not captured with common sleep summaries and different periods of the night provide unique information about a night’s sleep.

Honors Project in Mathematics, Statistics and Computer Science  
Advisor: Brianna Heggeseth  
Mathematics, Statistics and Computer Science Department

\*\*\*\*\*

**Caroline Hill Norfleet**

**A Phonological Analysis of the Realization of Word-Medial Nasal Codas in Mandarin Chinese**

This paper is an investigation of the realization of word-medial nasal coda consonants in Mandarin Chinese. Participants were seven native speakers of Mandarin Chinese who performed tasks designed to elicit disyllabic words in which nasal codas /n/ and /ŋ/ preceded vowels, glides, and consonants in both fast and careful speech. It was found that nasal codas are usually maintained when preceding consonants but are often elided when preceding vowels or glides. Speech rate also had a positive effect on the elision of nasal codas. Additionally, it was found that /ŋ/ was maintained more frequently than /n/ and when /ŋ/ is elided the preceding vowel is more likely to be nasalized.

Honors Project in Linguistics  
Advisor: Christina Esposito  
Linguistics Department

\*\*\*\*\*

**Mathea Pielemeier**

**Les traumatismes du passé, les esprits d'aujourd'hui :**  
**Le surnaturel et le traumatisme dans les œuvres de Ken Bugul et Scholastique Mukasonga**  
*Traumas of the Past, Spirits of Today:*  
*The Supernatural and Trauma in the Works of Ken Bugul and Scholastique Mukasonga*

*De l'autre cote du regard* by Ken Bugul and *La femme aux pieds nus* by Scholastique Mukasonga both present semi-autobiographical accounts of childhood, Bugul in Senegal and Mukasonga in Rwanda. While the content of the two novels differs – Bugul addresses her family history and fraught relationship with her mother, while Mukasonga documents community, culture, and family in the years preceding the Rwandan genocide and her mother's death – the supernatural is woven throughout both works. Bugul and Mukasonga provide highly detailed family histories which are situated in the larger context of their maternal communities. Both novels imply a tension between the traditions instilled by their mothers and the education the protagonists receive through the colonial system. In the writing itself there exists a tension between the language spoken in the family home and the author's French. This paper argues that the supernatural gives a voice to the dead, thus allowing the protagonists to reconcile these sources of tension and address their feelings of guilt. These conclusions are supported through analysis of the supernatural in the novel *L'Ombre d'Imana* by Veronique Tadjo and the film *Atlantique* by Mati Diop.

Honors Project in French and Francophone Studies  
Advisor: Joëlle Vitiello  
French and Francophone Studies Department

\*\*\*\*\*

**Nicole Carlota Pires**

**Reproductive Rights Are Democratic Values: Constructing Reproductive-Rights Legislation in Post-Authoritarian Spain and Chile**

Reproductive rights have long been contested within democracies, as theories on female citizenship and autonomy have evolved. This thesis examines the relationship between liberal reproductive-rights legislation and transitional justice methods in two consolidated democracies that experienced an authoritarian dictatorship in the 20th century: Spain and Chile. I ask, “What effect, if any, do transitional justice methods have on constructing liberal reproductive rights?” I provide an overview of the key theories applied in this thesis: transitional justice, democratization, feminist constitutionalism, catholic constitutionalism and reproductive rights. I discuss the historical contexts of Spain (1936-2020) and Chile (1973-2020), and analyze the two case studies. I conclude that a global comparative analysis of reproductive rights can uncover the socio-political conditions that are needed to achieve and protect liberal reproductive rights. I also conclude that although there is no specific transitional justice method that can guarantee liberal reproductive-rights legislation in every context, the inclusion of liberal reproductive-rights legislation as a transitional justice goal can play an important role in achieving this objective.

Honors Project in International Studies  
Advisor: Nadya Nedelsky  
International Studies Department

\*\*\*\*\*

**Sintra Marin Reves-Sohn**

**Recognition of Parasequences in the Marine Woodhawk Member of the Upper Cretaceous (Campanian) Judith River Formation, North-central Montana**

The three back-stepping fourth-order sequences in the Woodhawk Member of the Judith River Formation are presumed to contain parasequences, although poor exposure limits potential to identify parasequence-bounding flooding surfaces via direct field observation. Instead, I detect flooding surfaces in one of the Woodhawk sequences by statistical analyses (Loess and residual modeling) of grain size data determined by point counts and SEM-based imaging. A conservative interpretation identifies one parasequence boundary ~13-14 m above the basal contact. Grain size trends further suggest a second parasequence boundary ~10 m above the basal contact, and a sequence boundary ~20 m above the basal contact.

Honors Project in Geology  
Advisor: Raymond Rogers  
Geology Department

\*\*\*\*\*

## **Anna Leone Rotolo**

### **Collaborative Piano Recital**

In collaboration with violinist Nadav Skloot and vocalist Jesse Crosby, I learned and prepared for performance two major works of nineteenth-century chamber music literature: Violin Sonata No. 1 in G major, Opus 78 by Johannes Brahms, and the song cycle *Dichterliebe*, Opus 48 (Nos. 5, 6, 7, 9, 12, 16) by Robert Schumann. This was a year-long project beginning in summer 2019. First, we spent four months learning the notes of our own parts, a process which consisted of daily practice and study of the music in private lessons. After familiarizing ourselves with our parts, we met weekly for rehearsals together, in addition to continued daily individual practice. Once we were comfortable playing together, we began receiving regular coaching from Macalester Music Department faculty Claudia Chen (piano), Mindy Eschedor (piano), James Garlick (violin) and Mark Mazullo (piano). Unfortunately, because of COVID-19, the recital scheduled for April 16, 2020 was canceled. Though we didn't get a chance to perform the full program, we performed the first movement of the violin sonata at the Macalester Chamber Music Recital on November 24, 2019, and Song No. 6 of Schumann's song cycle at my senior recital on March 20, 2020. Through this process I've gained a better understanding of stylistic conventions of the romantic era. I've grown not only as an individual musician, facing the technical challenges involved in the learning process, but also as a listener and collaborator, attentive and reactive to the overall balance of the music instead of just my own part.

Honors Project in Music

Advisor: Mark Mazullo

Music Department

\*\*\*\*\*

**Samuel Ryckaert**

**Chasing Tonpa Shenrab's Horses: Religious Education and Cultural Transmission in the Global Tibetan Exile Community**

This paper is a survey of religio-cultural education practices in three Tibetan exile communities, one primarily Bönpo, one primarily Tibetan Buddhist, and one mixed. Though the idea of religio-cultural education can be extended to monastic education, this paper most prominently focuses on non-monastic educational spaces, namely Tibetan schools and, in the case of the United States, cultural centers. Herein the curricula employed in both spaces are outlined and compared in order to determine how different traditions are represented in education given the religio-cultural backgrounds of students and the spaces in which they are studying. The cultural background of each location and its relation to the Tibetan exile community are also outlined, using this information to examine how transmission practices are carried out in different exile contexts. On a larger scale, this paper hopes to use the answers to these questions in order to shed some light on the relationship between Buddhism and Bön in the 21<sup>st</sup> century, and how we may contextualize more various religio-cultural transmission practices in exile.

Honors Project in Religious Studies  
Advisor: Erik Davis  
Religious Studies Department

\*\*\*\*\*

**William Henry Sandy**

**When the Trade War Hits Close to Home: A GVC Analysis of the U.S.-China Trade War**

This paper measures the heterogeneous effects of the trade war between the United States and China on Global Value Chains versus other supply chains. Using simple OLS models with fixed effects, the effects of increased trade costs through substantial tariff increases on bilateral trade with China and other key trading partners are analyzed across 11 key GVC sectors. There is some evidence that GVCs are more sensitive to tariffs than other supply chains and that firms in consolidated markets are able to internalize costs to offset export reductions. There is little evidence of trade rerouting through other key US trade partners.

Honors Project in Economics  
Advisor: Felix Friedt  
Economics Department

\*\*\*\*\*

**Sophia Schlesinger**

**Bodies in the Margins: Refiguring the Rebetika as Literature**

This thesis engages a literary analysis of a corpus of songs and recordings known as the *rebetika* (sing. *rebetiko*), which prospered in the port districts of major cities throughout the Aegean in the early 20th century. Engaging the rebetika as literary texts, I argue, helps us understand how they have functioned as a kind of pressure point on the borders between nation and Other. Without making unprovable biographical claims about the motives of the music progenitors, I examine why so many have reached for the rebetika as texts with which to articulate various political and cultural desires. Using a multidisciplinary theoretical framework that includes Elaine Scarry, Stuart Hall, Edward Said, Mark C. Jerng, and Judith Butler, I track the ways the rebetika are implicated in the social marking and rendering of different kinds of bodies. I argue that through the devices of metaphor and metonymy, the songs, recordings, and lyrics of the rebetika preserve the memory of state violence and the experience of bodies in exile and, in doing so, clashed with contemporaneous processes of negotiating Greek national identity and policing the geosocial borders of "Europe." I also examine the kinds of meanings and body formations that secondary materials about the rebetika discursively produce. I ultimately argue that the rebetika provide a useful narrative vocabulary for talking about different kinds of marginality.

Honors Project in English  
Advisor: Andrea Kaston Tange  
English Department

\*\*\*\*\*

**William Stephen Setterberg**

**Nitrogen Vacancy Center Optical Magnetometry of a Barium-Iron-Cobalt Superconductor**

Probing the intrinsic properties of superconductors—such as the London penetration depth  $\lambda$  and the critical fields  $H_{C1}$  and  $H_{C2}$ —poses a difficult task. Various factors can impact the efficacy of results obtained for  $\lambda$  or  $H_{C1}$ , such as perturbations to the magnetic properties of the superconducting sample or crystalline defects. One measurement technique that minimizes the impact of these two issues is Nitrogen Vacancy (NV) center magnetometry. In this work, we use NV center magnetometry to perform minimally-invasive measurements of the lower critical field  $H_{C1}$  and London penetration depth  $\lambda$  on a sample of  $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ ,  $x = 7.4\%$  (BaCo122).

Honors Project in Physics and Astronomy  
Advisor: James Heyman  
Physics and Astronomy Department

\*\*\*\*\*

**Lydia Stoke Simpson**

**Exploring Potential Moderators in the Association Between Intersectional Awareness and Psychological Well-Being**

The goal of these two studies was to clarify the relationship between Intersectional Awareness (IA) and psychological well-being. Past research on this association has been mixed, with some studies identifying positive well-being outcomes and others identifying negative well-being outcomes. Study 1 examined the role of identity privilege, predicting that identity privilege would moderate the relationship between IA and well-being. Analyses indicated a positive relationship between IA and well-being for everyone, regardless of identity privilege. Study 2 examined the role of Critical Consciousness (CC) and its factors Critical Reflection (Egalitarianism; CC-Eg) and Critical Action (CC-CA), predicting that any association between IA and well-being would be for participants with high CC-CA, and would be intensified by CC-Eg. Analyses indicated that, overall the relationship between IA and well-being was insignificant, but CC-Eg played the most important role in predicting well-being by interacting separately with IA and CC-CA. Study 2 also examined the role of identity privilege and identity group, finding that any association between IA and well-being was non-existent for identity groups except for race, in which the association between IA and well-being was positive only for African American and Black people.

Honors Project in Psychology  
Advisor: Cari Gillen-O'Neel  
Psychology Department

\*\*\*\*\*

**Naomi Strait**

**Justice, Prevention, Respect: A Critical Investigation of Sexual Violence on College Campuses; And a Denunciation of Carceral Feminism**

Sexual violence is a “constructed” crime informed by race, class, and gender, although the effects of identity on the issue of sexual violence are often ignored in contemporary discourse. In the United States, the responsibility for holding sexually violent people accountable is laid upon the criminal justice system. However, the criminal justice system is inherently flawed and unjust, making the administration of true justice nearly impossible. Furthermore, mainstream feminists have long relied on the prison industrial complex to aid them in the fight against sexual violence, a phenomenon known as carceral feminism. A punitive, carceral feminist mindset has penetrated higher education institutions and influenced the criminalization of Title IX policy and practice. The criminalization of Title IX ignores that sexual violence is a result of systemic factors such as patriarchy, reinforcing instead the idea that sexual violence is idiosyncratic. Failing to address the systemic roots of sexual violence allows these acts of violence to continue. Specifically, fear- and shame-based rhetoric in U.S. sex education normalize violence and sex in youth culture. adrienne maree brown’s notion of pleasure politics allows us to imagine a more humanizing and pleasure-based way to educate about sex and sexuality. By validating and normalizing pleasure as a healthy element of sexual life, and as a form of restorative/transformational justice, we can move towards a society in which sexual violence is eradicated and human relations are nurtured. This paper uses scholarly sources supported by personal experience to draw connections between academic theory and real life.

Honors Project in American Studies  
Advisor: Karin Aguilar-San Juan  
American Studies Department

\*\*\*\*\*

**Esther Claire Swehla**

**How Does an Increase in the Minimum Wage Affect High School Enrollment?**

I explore how the probability of a student being enrolled or not and employed or not is affected by a minimum wage increase. I find that when either the nominal or real minimum wage increases, the probability of a student being employed and enrolled increases, while the probability of being in any other group decreases. However, this effect is very small. These results are relatively consistent for both boys and girls, and are robust to a variety of specifications. The analyses of gender and real vs nominal wage are previously unexplored, and mark my main contributions to the existing literature.

Honors Project in Economics  
Advisor: Sarah West  
Economics Department

\*\*\*\*\*

**Angel Ann Sylvester**

**Exploring the Landscape of Deep Learning**

Artificial Intelligence (AI) is an area of computer science that seeks to simulate the ways humans process information and react. Despite being a well-known concept, manifesting itself throughout many facets of our lives, the implementation is a black box. In order to demystify this field, I will cover a crucial branch of AI, deep learning. Deep learning, inspired by the structure and function of the neuron, performs automated feature extraction to enhance learning over many iterations. This was the basis of the research conducted at Macalester College during the summer of 2019 and will supplement the foundational content necessary for understanding neural networks throughout this paper. In doing so, I will illuminate the logic behind the architectural implementations as well as shine light on the projected future of deep learning as more strides are made to increase the robustness and breadth of deep convolutional neural networks. In exploring this field, I learned of the rich history of AI-based research, the complex and unstructured nature underlying the neural network architecture and performance optimization currently, as well as the interesting future routes robotics research conducted at Macalester could potentially take.

Honors Project in Mathematics, Statistics and Computer Science  
Advisor: Susan Fox  
Mathematics, Statistics and Computer Science Department

\*\*\*\*\*

**Connor Mack Thompson**

**Examining Bijections between Set Partitions, Paths, and Tableaux**

The partition algebra  $P_k(n)$  arose in the work of Jones and Martin in the 1990's and is an algebra with basis given by set partitions. Similar to the symmetric group  $S_k$ , the representation theory of the partition algebra seeks to take advantage of bijections between set partitions and other combinatorial objects. In recent works by Halverson and Lewandowski and Benkart and Halverson, we see bijections between set partitions and paths in the Bratteli diagram for  $P_k(n)$ , while in a recent work of Colmenarejo et al. we see a bijection between set partitions and standard set partition tableaux. In this thesis, I find that these bijections all produce equivalent results. I also briefly explore the representation theory of the Brauer algebra, based on work done by Leduc and Ram as well as Nazarov.

Honors Project in Mathematics, Statistics, and Computer Science  
Advisor: Thomas Halverson  
Mathematics, Statistics, and Computer Science Department

\*\*\*\*\*

**Abigail Rose Thomsen**

**Beyond 106: Descendant-Centered Collaboration to Interpret Dakota Archaeological Sites at Macalester's Katharine Ordway Natural History Study Area (KONHSA)**

This thesis addresses the absence of frameworks for collaborative interpreting Indigenous archaeological sites. I discuss my experience of descendant-centered collaboration with representatives from Dakota communities to create two interpretive signs for Macalester's Katharine Ordway Natural History Study Area (KONHSA). I worked with Tribal Historic Preservation Officers from Upper Sioux Community, Lower Sioux Indian Community, and Prairie Island Indian Community to determine sign content and design. In this work, I examine the history of the land currently called KONHSA from an archaeological perspective. Then, I discuss the history of archaeology and Cultural Resource Management (CRM) as an oppressive practice, and I argue for collaborative methods based in frameworks of Indigenous archaeology. To contextualize the signs I made collaboratively, I analyze relevant concurrent discussions around Indigenous representation in the Twin Cities, as well as on Dakota sites with interpretive signage. I also reflect upon my experience of the collaborative process. Finally, I provide recommendations for the future at KONHSA and at Macalester College. Overall, I argue that interpreters must center descendant voices in their interpretive process using collaborative methods, and that Macalester College must invite Indigenous collaborators to continue interpreting the land at KONHSA in order to make the college more inclusive as a whole. These words reflect my own experiences and opinions.

Honors Project in Anthropology  
Advisor: Scott Legge  
Anthropology Department

\*\*\*\*\*

**Benjamin Taylor Trumble**

**Community at Risk: Identity, Memory, and Civic Challenges on the Iron Range**

The Mesabi Iron Range within the Arrowhead of northern Minnesota has long been known for its immigrant heritage, strong unions, straight ticket Democratic voting, and rich iron ore that helped to build America. Over the last forty years, that community identity has slowly faded. To answer why, this interdisciplinary research project is based on interviews, participant observation, examination of public history and memory, and is grounded in geographic theory. Chapters focus on the region's unique history and geography, individual identity, collective memory, community development, and discussion of current issues in order to understand challenges on the Iron Range.

Honors Project in Geography  
Advisor: Laura Smith  
Geography Department

\*\*\*\*\*

**Maya Varma**

**Nalini Malani's *Medea Project*: Gender and Nationhood in Postcolonial India**

In 1996, renowned contemporary Indian artist Nalini Malani embarked on what would become a decades-long project exploring the Greek myth of Medea as an embodiment of postcolonialism. Considering Medea's historical interpretations as a mistreated wife and a villainous mother, this thesis examines how Malani transforms Medea into a metaphor of resistance to British colonialism and anticolonial nationalism in post-Partition India. Against the backdrop of the 1947 Partition and subsequent political events relating nationhood with the female body, Malani negotiates Medea as an emancipatory figure who shifts essentialized notions of womanhood into more complex narratives of violence, subjectivity, and liberation.

Honors Project in Art and Art History  
Advisor: Joanna Inglot  
Art and Art History Department

\*\*\*\*\*

**Jianda (Dada)Wang**

**Embodying Resistance: The Performance Art of Ma Liuming, Zhang Huan, and He Yunchang**

Chinese performance artists Ma Liuming, Zhang Huan, and He Yunchang produced works in the 1990s that responded to various forms of oppression prevalent in the Chinese society at the time. Relying on critical theories of Michel Foucault and Giorgio Agamben, this project interrogates the biopolitical domination of the Chinese Communist Party, revealing the strategies these three artists deployed to retaliate against government-sanctioned subjugation. Examining their works within China's unique sociopolitical reality, this project places Ma, Zhang, and He within transnational cultures of dissent and contends that their performances constitute forces of political resistance that effectively undermine the sovereignty of the Chinese state.

Honors Project in Art and Art History  
Advisor: Joanna Inglot  
Art and Art History Department

\*\*\*\*\*

**Jacob Daniel Weightman**

**SwiftSmith: Detecting Faults in the Swift Compiler with Metamorphic Testing**

The quality and reliability of compilers is important because compiler faults can unwittingly introduce bugs into otherwise good software or disrupt the software development process. Metamorphic testing offers a promising approach to circumvent the oracle problem, and has detected bugs in many production compilers. We built a tool called SwiftSmith for generating equivalent programs in the Swift language, and use it to test the Swift compiler using metamorphic testing for the first time. Furthermore, we propose several metamorphic relations for Swift programs, and study their effectiveness for revealing faults in the Swift compiler.

Honors Project in Mathematics, Statistics and Computer Science  
Advisor: Lian Duan  
Mathematics, Statistics and Computer Science Department

\*\*\*\*\*

**Christopher R. Werbos**

**Arcs and Authoritarians: Towards a Model of Institutional Influences on Dictatorial Resilience**

Over the past several decades, a wide variety of hypotheses have been put forth to help explain dictatorial resilience, and the staying power of dictatorships in various parts of the world. Nonetheless, these papers have largely relied upon conjecture and speculation, with no consistent means to evaluate said hypotheses' veracity put forth. This paper uses the institutional analysis methodology brought forth by Elinor Ostrom (2011) and applies it to the problem of dictatorships, creating a basic model of dictatorships and allowing for us to evaluate the impact of various institutions upon their resilience. The use of the model is demonstrated, and grounds are given to reevaluate hypotheses surrounding dictatorial resilience put forth by well-cited papers in the literature.

Honors Project in Political Science  
Advisor: Andrew Latham  
Political Science Department

\*\*\*\*\*

**Anya Wolterman**

**A Deep View into the Peninsular Ranges Batholith: Zircon Geochronologic and Hf Isotopic Insights from Granulite Xenoliths of the San Quintin Volcanic Field, Baja California**

Magmatic arcs exert tremendous control over the growth and evolution of continental crust, functioning as factories for new crust and distilleries where it is refined to an overall intermediate composition. The deepest levels of arcs are their least understood domain, especially with regard to the processes controlling the interaction of mantle and crustal components, due to the rarity of deep arc materials available for direct study. In broad terms, the evolution of the lithosphere beneath North America is studied by looking at mafic volcanic rocks and their mafic to ultramafic xenoliths associated with such arcs and quantifying their ages and geological origins. Recent zircon U-Pb ages and Hf isotopic values indicate that xenoliths from the Quaternary San Quintin Volcanic Field (SQVF) represent the only known material from the base of the Peninsular Ranges Batholith (PRB) that underlies much of the Baja California Peninsula. Xenoliths from SQVF are broadly divided into crustal (plagioclase-bearing, clinopyroxene and/or orthopyroxene granulite with minor olivine) and mantle (spinel lherzolite) categories. 92% of zircons from crustal granulite nodules are Cretaceous, dating to ca. 145 to 90 Ma. This range overlaps the most voluminous phase of PRB construction, an intriguing result given its strike-perpendicular zonation. Mafic volcanic and volcanoclastic rocks of the Alisitos arc, constructed offshore from ca. 140 to 105 Ma and accreted to the continental margin by ca. 105 Ma, underlie the western PRB and host the SQVF, while felsic intrusives of the ca. 100 to 90 Ma La Posta suite mark the eastern domain. This age span suggests that studied xenoliths initially formed as deep-level intrusive equivalents to exposed extrusive and shallow intrusive products of the Alisitos arc. Furthermore, ca. 100 to 90 Ma ages plus microstructural evidence for magmatic infiltration of earlier formed material suggest that the deep PRB continued to develop as the La Posta suite invaded the crust and may point to the presence of unrecognized volumes of La Posta-age additions beneath the western PRB. Zircon Hf isotopic values for Cretaceous grains span from +2.1 to +8.4, consistent with geochemical data from the Alisitos arc indicating a significant depleted mantle component for these materials. Subequal proportions of remaining grains are Jurassic, Triassic, Proterozoic, and Archean in age, and yield negative Hf isotopic values. The presence of pre-batholithic grains at deep levels of the western PRB points to incorporation of a small amount of continental material during emplacement and strongly supports a fringing, non-exotic origin of the Alisitos arc.

Honors Project in Geology  
Advisor: Alan Chapman  
Geology Department

\*\*\*\*\*

**Justin Chyng-Feng Wong**

**Between Gentrifiers and Tourists: Walk-in Gentrifiers, Institutional Expansion and Space in Boston's Chinatown**

How does institutional expansion modify the process of gentrification, and how is this modified process experienced by residents of the gentrifying community? I explore how this modified gentrification process unfolds in the setting of Boston's Chinatown. I propose an analytical framework that joins the process of institutional expansion to the process of traditional gentrification, while also expanding this definition to include how the institutional expansion results in heightened social inequality and a loss in community resources along the lines of race and class. In Boston's Chinatown, Tufts Medical Center and School continues to expand its institutional presence. I propose that institutional expansion heightens racial and class disparities. Not only does institutional expansion alter the physical appearances of the neighborhood and its class and racial demographics, but it also changes perceptions of who spaces belong to when neighborhood spaces are inscribed with white, middle class meanings. This in turn creates a rift in how extant community members perceive and derive meaning from these new, institutional spaces that have been coded as aloof and unwelcoming by a combination of both the social and physical characteristics of those spaces.

Honors Project in Sociology  
Advisor: Erika Busse-Cardenas  
Sociology Department

\*\*\*\*\*

**Jiawen (Xavier) Xin**

**Parsing a Victorian Sensation: The Literary Mechanics of Evolutionary Science in *Vestiges of the Natural History of Creation***

In popular understanding, the history of evolutionary theory knows one name—Charles Darwin—and one date—1859. Late in the second week of October, 1844, however, the publication of an anonymous work titled *Vestiges of the Natural History of Creation* would alter the course of evolutionary theory in Victorian society. Reaching more than a hundred thousand readers across social classes and politics, *Vestiges* overtook *Origin of Species* in popularity, brought evolution—a taboo topic at the time—into mainstream discussion, and became one of the greatest sensations of its time. In this thesis, I argue that a literary analysis of this book of science is central to helping us understand how *Vestiges* accomplished its contemporary status as one of the definitive sensations of the Victorian era. My analysis, beyond showing how the literary mechanics of *Vestiges* is central to its mass appeal, further highlights that science is made as much through observation and logic as through the literary mechanics of the prose that expresses it. Directing the lens of literary analysis to Victorian scientific prose reveals the ways in which literary strategies are central to knowledge production and dissemination. Such method therefore affords us a more complete and complicated understanding of the history of evolutionary theory in particular, and science in general. In Chapter 1, I show how Robert Chambers’ (the posthumously revealed author) narratorial voice creates a “democratic” process of knowledge production; and in Chapter 2, I explore the rhetorical strategies Chambers employs to reconcile the growing religious and political anxieties surrounding the emerging disciplines of science. I conclude by situating *Vestiges* in its broader context of the British empire and tracing its troubling legacies in Darwin’s *Origin* and modern-day racism. This project demonstrates the importance of Humanities in a STEM-focused world. Literary analysis not only helps us understand how scientific ideas are able to gain cultural authority, but also reveals how science itself is produced through literary strategies.

Honors Project in English

Advisor: Sierra Lomuto

English Department

\*\*\*\*\*

# PRIZES & AWARDS

The prizes and awards listed below are being given to graduating seniors of the Class of 2020.

## AMERICAN STUDIES

THE AMERICAN STUDIES AWARD FOR CREATIVITY AND SOCIAL RESPONSIBILITY—Awarded by the faculty of the American Studies Department to a senior major who has demonstrated outstanding academic achievement in scholarly, cultural, and civic engagement.

*Kendra Elisabeth Roedl*

THE MANNING MARABLE MEMORIAL AWARD IN AMERICAN STUDIES—Awarded by the faculty of the American Studies Department to a senior major who has demonstrated outstanding academic achievement in the study of race, ethnicity and the American experience.

*Naomi Strait*

## ANTHROPOLOGY

THE DAVID W. McCURDY AWARD FOR EXCELLENCE IN ANTHROPOLOGICAL RESEARCH—Presented annually to a student who demonstrates special excellence in anthropological research.

*Gianna Elena Brassil*

SONIA E. PATTEN DISTINGUISHED SERVICE AWARD—Established in honor of Sonia Patten, Anthropology Professor Emerita. Dr. Patten, a Minnesota native, specialized in medical anthropology, conducting brilliant research in Ghana as well as the United States for many years. Awarded to a senior anthropology major who has contributed most to the formal and informal programs of the Anthropology Department.

*Marleigh Jenkins-Morse*

JAMES P. SPRADLEY RESEARCH AWARD—Established in memory of James P. Spradley by colleagues, family, and friends. Presented annually to a senior majoring in anthropology who has demonstrated outstanding scholarship in anthropological course work and/or research.

*Abigail Rose Thomsen*

THE JACK WEATHERFORD PRIZE—Given to the student who has produced the best capstone paper, as judged by a panel of faculty in the Department of Anthropology. It is named in honor of Professor Jack Weatherford, who designed the Senior Seminar course which includes independent research by each student culminating in a synthesizing capstone research paper.

*Coleen P. Del Rosario*

## **ART AND ART HISTORY**

DONALD D. CELENDER ART HISTORY PRIZE—Established in honor of Edith M. Kelso Professor of Art Donald D. Celender who taught in the department from 1964-2005 and chaired the department for many years. The prize is awarded to a senior art major for outstanding work in art history.

*Jianda (Dada) Wang*

ART DEPARTMENT MERIT AWARDS—Book awards presented to graduating art majors for outstanding achievement in the areas of studio art or art history.

Distinguished Merit Award in Art History:

*Maya Varma*

Joan Mondale Ceramics Award in Studio Art:

*Rebecca Grossi*

Merit Awards in Studio Art:

*Ruby Pandora Natya Elliott Zuckerman*

*Ema Elizabeth Erikson*

*Marissa Grace Mohammed*

## **ASIAN LANGUAGES AND CULTURES**

CHINESE LANGUAGE AND CULTURE PRIZE—Established by alumni to recognize a student who has shown outstanding ability and promise as a learner of Chinese language and culture.

*Caroline Hill Norfleet*

JAPANESE LANGUAGE AND CULTURE PRIZE—Established by alumni to recognize a student who has shown outstanding ability and promise as a learner of Japanese language and culture.

*Jingyi Guo*

*Marisa T. Peredo*

## **BIOLOGY**

AMERICAN CYANAMID ENDOWED PRIZE—Established by the American Cyanamid Company, the prize is awarded to upper-class students enrolled in pre-medical courses in preparation for medical school.

*Melissa Margaret Blum*

*Winnie Chen*

WILLIAM R. ANGELL FOUNDATION PRIZE—Named for the president of the Continental Motors Corporation to honor outstanding seniors majoring in biology.

*Rina Morisawa  
Jean Robert Pengra  
Madison S. Tuffield*

MARK DAVIS ECOLOGY PRIZE—Established by Mark Davis, DeWitt Wallace Professor of Biology, the prize is awarded to a senior biology major who has excelled in ecology courses and research.

*Phuong Minh Nguyen*

HPAC AWARD—Established by the Macalester Health Professions Advisory Committee (HPAC) to honor students who are going into a medical profession.

*Kamelia Yavorova Drenkova  
Liam Jacob Edwards-Gaherty  
Paige Katherine Hepenstal  
Allison Deborah Leopold*

O. T. AND KATHRYN WALTER AWARDS—Established by former students of Dr. O.T. Walter, chair of the Biology Department for 41 years, the awards are given to students who show promise of success in medicine related fields.

*Caroline Behling-Hess  
Marie Abigail Crane  
Kamelia Yavorova Drenkova  
Ariel Mei Roghair*

## **CHEMISTRY**

AMERICAN INSTITUTE OF CHEMISTS AWARD—Awarded to a senior chemistry major who has demonstrated outstanding scholastic achievement, leadership ability and character. The recipient receives both a certificate and student associate membership in the American Institute of Chemists.

*Meng Luo*

ROYAL SOCIETY OF CHEMISTRY CERTIFICATE OF EXCELLENCE—A copy of *The Merck Index* and a certificate awarded to a senior chemistry major who has excelled in both chemistry and overall coursework and is likely to make a contribution to the global chemical science community.

*Ingrid R. Kilde*

THE TRUMAN SCHWARTZ CHEMISTRY PRIZE—Established in 2011 by Dr. A. Truman Schwartz, DeWitt Wallace Emeritus Professor of Chemistry, and Beverly Beatty Schwartz, the prize recognizes a student who has demonstrated academic excellence and exceptional service to the Chemistry Department and its students as a teaching assistant, laboratory assistant, or tutor. The recipient has shown expertise in the discipline and outstanding effectiveness in and commitment to helping other students master concepts and excel in their learning.

*Steven Ngo  
Kellie Stellmach*

CHESTER H. SHIFLETT ENDOWED PRIZES—Established by former students and colleagues to honor Dr. Shiflett, Professor of Chemistry at Macalester 1929–1966. Given to outstanding seniors majoring in chemistry.

*Isaiah Eckart-Frank*

EMIL J. SLOWINSKI AWARD IN EXPERIMENTAL CHEMISTRY—Established in honor of Professor Emil J. Slowinski who taught chemistry at Macalester from 1964-1988. Awarded to students conducting noteworthy, experimental work in chemistry.

*Elizabeth Anne Croll*

UNDERGRADUATE AWARD IN ORGANIC CHEMISTRY—This award is intended to recognize a senior student who displays a significant aptitude for organic chemistry and to encourage further interest in the field.

*Meng Luo*

UNDERGRADUATE AWARD IN PHYSICAL CHEMISTRY—Awarded by the Physical Chemistry Division of the American Chemical Society to a senior chemistry major who has excelled in the area of physical chemistry.

*Camden James Moser*

IOTA SIGMA PI--Nomination to the national honor society for outstanding women chemistry majors and biology (biochemistry emphasis) majors upon completion of either (1) six semesters of chemistry with a grade point average of 3.0 or above or (2) four semesters of chemistry with a grade point average of 3.5 or above.

*Melissa Margaret Blum*  
*Marina Rae Brendel*  
*Elizabeth Anne Croll*  
*Stella Matutina Ikuzwe*  
*Ingrid R. Kilde*  
*Meng Luo*  
*Tylyn Ayana Page*  
*Julia Kirsten Rasch*  
*Kellie Stellmach*  
*Angel Ann Sylvester*  
*Eleanor J. Wettstein*

PHI LAMBDA UPSILON--Nomination to the national honor society for seniors who achieve excellence in chemistry. Requires completion of chemistry major with a minimum grade point average of 3.5 in all of their Macalester classes.

*Marina Rae Brendel*  
*Elizabeth Anne Croll*  
*Isaiah Kevin Eckart-Frank*  
*Caleb Arthur Huntington*  
*Stella Matutina Ikuzwe*  
*Ingrid R. Kilde*  
*Meng Luo*  
*Camden James Moser*  
*Steven Minh Ngo*  
*Tylyn Ayana Page*  
*Julia Kirsten Rasch*  
*Kellie Stellmach*  
*Angel Ann Sylvester*  
*Jayden Lee West*

## **CIVIC ENGAGEMENT**

GEORGE STANLEY ARTHUR PRIZE FOR COMMUNITY SERVICE--Established by Andrew William Arthur, '83, and his father, Robert Arthur. Awarded annually to a graduating senior with a grade point average of 3.7 or above who best exemplifies Macalester College's historic commitment to community service.

*Isaac Schakowsky Hart*  
*Gary Huuang*  
*Maya Varma*

FRANK AND MOLLIE STEUDLE PRIZE—Established anonymously in memory of Frank and Mollie Steudle, who committed their lives to family and community service. Awarded annually to a senior who has demonstrated distinguished work in interdisciplinary studies in physical, mental, and emotional wellness. The recipient should also be active in community service, interested in working with the elderly, and planning a career dedicated to helping others.

*Maya Mohini Shenoy*

## **CLASSICAL MEDITERRANEAN AND MIDDLE EAST**

VIRGINIA McKNIGHT BINGER PRIZE—Awarded to an outstanding student who demonstrates an exceptional proficiency in classical languages and/or ancient history.

*Charlotte Esther Houghton  
Noah Charles Wilkerson*

JEREMIAH REEDY PRIZE IN CLASSICS--The Jeremiah Reedy Prize in Classics recognizes students who have made significant contributions to the Classics Department. It was created to honor Jerry Reedy, who taught Classics at Macalester from 1968-2004, founded a charter school in St. Paul, and helped to create innumerable other opportunities for humanities students of all ages.

*Ikran Abdilkadir Sheikh-Mursal*

ETA SIGMA PHI--National honor society for students of Latin and Greek. Open to students who have done a significant amount of work in Latin and/or Greek with a grade point average of 3.0.

*Francesca Guglielmone Gillis  
Charlotte Esther Houghton  
Noah Charles Wilkerson*

## **ECONOMICS**

ROBERT L. BUNTING PRIZE IN ECONOMICS—Established in honor of Robert L. Bunting with gifts from his colleagues and friends. Robert Bunting taught in the Economics and Business Departments from 1969-1984 and held the F.R. Bigelow Professorship of Economics for many years. Awarded annually to an exceptional graduating senior who will likely conduct graduate work in economics and/or business, has an enduring interest in the political economy, and plans to pursue a career in academia.

*Camille Shapiro Baker*

JOHN M. DOZIER PRIZES IN ECONOMICS—Established in 1974 with personal gifts from members of the Board of Trustees of Macalester College in honor of John M. Dozier, Macalester Vice President for Financial Affairs from 1966–1974. Awarded annually to students majoring in economics who have demonstrated academic competence and an interest in a financial administration career.

*Andra Ecaterina Boca*  
*Muxue Kou*  
*Vincent Jones Mougin*  
*Meghan Renee Roffler*  
*Karl August Schuetzle*  
*Jennifer Tan*  
*Daijiro Yokota*

ELAINE GARTNER PILON AWARD—Established by Elaine Gartner Pilon '45 in 1973 to recognize outstanding scholastic achievement by a senior majoring in economics. Considered one of the department's highest awards, it is given to the senior economics major with the highest overall and economics grade point averages. It includes a year's subscription to *Fortune* magazine.

*Jackson L. White*

MIKE McEWEN PRIZE—Established in 1993 in memory of Mike McEwen, '77, by his finance classmates. Mike was highly respected and well-liked by both his peers and the Macalester faculty. During his senior year, he played first-string guard on the basketball team. Awarded annually to an outstanding scholar-athlete who is majoring in economics and who participates in intercollegiate athletics.

*Michael T. Babb, Jr.*  
*Nikhil Smith*

DAVID MEISELMAN PRIZE—Established by an anonymous donor in honor of David Meiselman who taught in the Department of Economics from 1966-71. The prize is awarded annually to a graduating senior for outstanding accomplishment in macroeconomic theory or policy.

*William Henry Sandy*

3M SCHOLAR AWARDS—Established by the Economics Department with a grant from the 3M Company in 1982. Awarded to those seniors who have demonstrated outstanding academic achievement in their economics courses at Macalester College.

*Mason E. Cohn*  
*Saloni Daga*  
*Yuanchen Leo Li*  
*Dogukan Pasha*  
*Esther Claire Swehla*  
*Christopher R. Werbos*

VASANT SUKHATME ACADEMIC EXCELLENCE AWARD—Established in 2011 to honor the long service and numerous contributions of Professor Vasant Sukhatme, who taught students the value of clear thinking, hard work and dedication to the highest academic standards.

*Claire Louise Buehler*  
*Jasmine Davidson*

OMICRON DELTA EPSILON--National honor society in Economics. Students are elected who have an overall grade point average of 3.0 or better. Members receive the *American Economist* for one year and a scroll and are eligible to wear the key of the fraternity.

*Nahla Almbaid*  
*Camille Shapiro Baker*  
*Claire Louise Buehler*  
*Mason E. Cohn*  
*Jasmine Davidson*  
*Jennifer Eng*  
*Jingyi Guo*  
*Kaarin Khandelwal*  
*Yannick André Bruno Laurent*  
*Vincent Jones Mougin*  
*Natasha Njeri Mwonga*  
*Selma Ahmed Osman*  
*Farhan Sadiq*  
*William Henry Sandy*  
*Nikhil Smith*  
*Dean Burich Smith*  
*Esther Claire Swehla*  
*Christopher R. Werbos*  
*Jackson L. White*  
*Daijiro Yokota*

## **EDUCATIONAL STUDIES**

RICHARD B. DIERENFIELD ENDOWED PRIZE FOR EDUCATION—Established by J. W. Fahlgren, '60, to honor Richard B. Dierenfield, professor and chair of the Education Department from 1951-1988. Awarded to a senior student who has shown outstanding potential as a teacher in a secondary school.

*Max Danielewicz*  
*Maria Joy Peterson*  
*Deborah Yvonne Pickford*

THE ALMA M. ROBINSON EDUCATION PRIZE—Established in honor of Alma M. Robinson, '56, by her husband, Robert, and their friends and family. Mrs. Robinson devoted her life to teaching and loved Macalester. Given annually to a Macalester student pursuing a career in teaching.

*Roni Margalit*  
*Olivia Caroline Sailors*  
*Maya Varma*

THE MARY WHITCOMB FAHLGREN ENDOWED PRIZE—Established by James W. Fahlgren, '60, in honor of his mother, Mary Whitcomb Fahlgren. Awarded to a student who has demonstrated outstanding potential as a teacher in secondary education.

*Isaac Schakowsky Hart*  
*Kathleen Angelina Hunter*

## **ENGLISH**

ACADEMY OF AMERICAN POETS COLLEGE PRIZE -Awarded annually under the aegis of the Academy of American Poets to a Macalester student for the best poetry submitted to the English Department and judged independently by a representative of the Academy.

Winner:  
*Sophia Schlesinger*

LIVINGSTON-PATNODE PRIZE—Established in 1992 by an anonymous donor in honor of Ray Livingston and Jack Patnode, who both taught in the Macalester English Department. Professor Livingston taught at Macalester from 1956-1967, and Professor Patnode taught from 1946-1972. Presented to a graduating senior who has made a special contribution to the college as an English major.

*Sophie E. Hilker*

NICK ADAMS SHORT STORY CONTEST—Named for the young hero of many Hemingway stories, this prize was given by an anonymous donor to encourage young writers who are students at ACM colleges and is awarded for the best story by an ACM student.

Winner:  
*Ruby Pandora Natya Elliott Zuckerman*

Honorable Mention:  
*Beatrice Chihak*

Finalist:  
*Alyssa J. Franzmeier*

WENDY PARRISH POETRY AWARD—Established by Stanley and Marian Parrish and the English Department in memory of Wendy Parrish, '72. Wendy was an instructor in the English Department and a poet of considerable merit. Many of her poems were published in journals and a book of her poems, *Conversations in the Gallery*, was published posthumously. Presented to a student who exemplifies, like Wendy, a commitment to poetry and demonstrates excellence in writing.

*James Hartzler*  
*Dakotta Nicole Heacock*  
*Julia R. Joy*

HARRY SCHERMAN WRITING AWARD—Established by Harry Scherman to honor students in the English Department for their literary essays and creative writing.

Creative Prose:  
*Alyssa J. Franzmeier*

Literary Analysis:  
*Zoe Berkovitz*  
*Jiawen (Xavier) Xin*

Poetry:  
*James Hartzler*  
*Julia R. Joy*

ALPHA RHO THETA--The Macalester chapter of SIGMA TAU DELTA, International English Honor Society. Open to students who have completed at least three semesters of college work and a minimum of two college courses in the English language or literature beyond the usual requirements in freshman English. They must also have a grade point average of 3.65 or above and rank at least in the highest 35 percent of their class in general scholarship.

*Laura Marie Berghlund*  
*Zoe Berkovitz*  
*Julia May Carpenter*  
*Madeline A. Freedman*  
*James Hartzler*  
*Sophie E. Hilker*  
*Julia R. Joy*  
*Kristina E. Nazarova*  
*Roan William Ellis O'Neill*  
*Justin Michael Secor*  
*Amber Raye Stuedell*  
*Jiawen (Xavier) Xin*

## **ENVIRONMENTAL STUDIES**

ENVIRONMENTAL STUDIES CITIZENSHIP PRIZE—Awarded for academic excellence in multidisciplinary studies of the environment.

*Anya Rae Ptáček*

ENVIRONMENTAL STUDIES SCHOLARSHIP PRIZE—Awarded to students who exhibit academic excellence in multidisciplinary studies of the environment.

*Phuong Minh Nguyen  
Lydia Rose Sulik*

## **FRENCH AND FRANCOPHONE STUDIES**

VIRGINIA McKNIGHT BINGER PRIZE—Awarded to an outstanding student who demonstrates an exceptional proficiency in the modern French language and in French literature.

*Emma May Rose Carray*

HÉLÈNE PETERS PRIZE FOR STUDY IN A FRENCH-SPEAKING COUNTRY—Established in 1992 by colleagues, alumni and friends, in honor of Hélène Peters, Professor Emerita of the French Department and founder of the French Study Abroad Program. Awarded to a deserving student with a concentration in French to support international study in a French-speaking country.

*Sophia I. Hays  
Julia Caroline Hirsch*

KARL C. SANDBERG ENDOWED PRIZE—Established in memory of Karl C. Sandberg by alumni, colleagues, and friends. Professor Sandberg served as Dewitt Wallace Professor of French and Humanities from 1968-1992. His primary areas of interest were literature, philosophy, and the ideas and art of 17th- and 18th-century France. Awarded to a senior with a concentration in French who has demonstrated an engagement with the literature and philosophical ideas of France and their relationship to the arts.

*Mathea Pielemeier*

PRIZES FOR EXCELLENCE IN FRENCH STUDIES—Book awards to recognize outstanding accomplishment in the study of French at the elementary and intermediate levels.

Level I:  
*Ignasi Dorca*

## **GEOGRAPHY**

DAVID A. LANEGRAN AWARD—Named after the department's longest serving faculty member, presented annually to senior geography majors in recognition of their significant contributions to the community life of the department.

*Sophia Miriam Alhadeff*  
*Dio Cramer*  
*Esther Ramsay*  
*Sivan Rachel Tratt*

NATIONAL COUNCIL FOR GEOGRAPHIC EDUCATION AND ASSOCIATION OF AMERICAN GEOGRAPHERS AWARD FOR EXCELLENCE OF SCHOLARSHIP—A certificate award established by the association to be awarded to a graduating senior.

*Emma Lynne Heth*

GAMMA THETA UPSILON--National honor society in Geography. Third-semester students of Macalester College are eligible who have a recommended overall grade point average of 3.0 and who have completed three courses in geography with a 3.0 grade point average.

*Sophia Miriam Alhadeff*  
*Malia Yokoyama Becker*  
*Margaret Rose Chittick*  
*Julia May Evelyn*  
*Emma Lynne Heth*  
*Benjamin Coltrane Townsend*  
*Sivan Rachel Tratt*

## **GEOLOGY**

HUGH S. ALEXANDER ENDOWED PRIZE—Established in honor of Dr. Hugh S. Alexander, Professor of Geology from 1906-1948. Awarded to an outstanding senior geology major.

*Alessandro Antúnez de Mayolo Mauceri*  
*Anya Wolterman*

HENRY LEPP AWARD—Established in honor of Professor Henry Lepp who taught in the Geology Department from 1963-1988. Awarded to a student who has made a commitment to academic excellence in geology.

*Clare Katherine Trone Johnson*  
*Sintra Marin Reves-Sohn*

## **GERMAN AND RUSSIAN STUDIES**

EVELYN ALBINSON AWARD FOR ACADEMIC EXCELLENCE IN THE STUDY OF GERMAN—Established in 1977 in honor of Dr. Evelyn Albinson by colleagues, friends, and alumni. Professor Albinson contributed immensely to the Germanic languages and literature program at Macalester over the course of a long and successful career. Awarded annually to a student who has a high grade point average, a distinguished record in German Studies, and who has qualified for Phi Beta Kappa.

*Jessi Alexander Brandon*  
*Theodore Caskey*

VIRGINIA McKNIGHT BINGER PRIZE—Awarded to an outstanding student who demonstrates an exceptional proficiency in German language and related studies.

*Hannah Jo Courtney*  
*Aedan McGann Helweg*

DELTA PHI ALPHA—National honor society in German. Student members are chosen from senior German majors who attain at least a 3.5 grade point average in Macalester German courses and have an overall grade point average of 3.0 or greater.

*Jessi Alexander Brandon*  
*Theodore Caskey*  
*Hannah Jo Courtney*  
*Aedan McGann Helweg*

## **HISTORY**

THE YAHYA ARMAJANI PRIZE IN GLOBAL HISTORY—Established by the History Department to honor Yahya Armajani. Awarded to distinguished senior history majors.

*Samuel G. Nail*

CASE PRIZE IN AMERICAN WESTERN HISTORY—Established by Leland D. Case, '22, awarded to a student who has conducted original research or study in the area of western American history.

*EJ Sackton Coolidge*

THE KENNETH L. & MARTHA S. HOLMES PRIZE IN HISTORY OF THE AMERICAS—Established by the History Department to honor former, distinguished colleagues. Awarded annually to distinguished senior history majors.

*Keaton Elizabeth Belbas*  
*Lydia Rose Sulik*

THE J. HUNTLEY DUPRE PRIZE IN EUROPEAN HISTORY—Established in 1983 in honor of J. Huntley Dupre by the History Department. Dr. Dupre served as a history and political science professor as well as the academic dean at Macalester for 16 years until his retirement in 1962. He exuded incredible warmth and strength of character. Presented annually to a history major who has demonstrated a commitment and talent for European history.

*Morgan Elise Hess*

TERESITA MARTINEZ VERGNE MEMORIAL PRIZE—Established in 2014 by her daughter, Irene Toro Martínez, with additional support from colleagues, family and friends. Awards to students for original research or study of Caribbean and Latin American history.

*Melanie Guardado*

KATHLEEN ROCK HAUSER PRIZE IN WOMEN’S AND GENDER HISTORY—Established by the Women Historians of the Midwest, Dr. Donald Rock, and Mrs. Irene Rock in the memory of Kathleen Rock Hauser, ‘62. Awarded to a student who has made a significant undergraduate contribution to women’s history.

*Oriana Marie Galasso*  
*Spencer David McAllister*

ERNEST R. SANDEEN MEMORIAL PRIZE—Established in memory of Ernest R. Sandeen, Professor of History from 1963-1982, by his colleagues, friends, and family. Given to a student who has completed an original, high-quality piece of research in the field of history. Additionally, the student should reflect the qualities of Sandeen himself: exceptional skill, imagination, and effort.

*Beatrice Chihak*  
*William Patrick McMahan*

PHI ALPHA THETA--Students are eligible for induction into Phi Alpha Theta, the national honor society in history, if they have a 3.5 grade point average in at least twelve semester hours of work in history and have a 3.25 grade point average overall.

*Keaton Elizabeth Belbas*  
*EJ Sackton Coolidge*  
*Oriana Marie Galasso*  
*Melanie Guardado*  
*Morgan Elise Hess*

## **INTERNATIONAL STUDIES**

THE INTERNATIONAL STUDIES PRIZE FOR ACADEMIC EXCELLENCE—Awarded by the faculty of the International Studies Department to a senior major who has demonstrated outstanding academic achievement in International Studies at Macalester College.

*Autumn Jeanne DeLong*

## **LATIN AMERICAN STUDIES**

**THE LATIN AMERICAN STUDIES AWARD FOR EXCELLENCE AND INNOVATION** – Awarded to students majoring in Latin American Studies for academic excellence and scholarly innovation, including original field or archival research.

*Susanna Eloisa Morales*

**JAMES B. STEWART AWARD FOR ENGAGED SCHOLARSHIP IN LATIN AMERICAN STUDIES**—This award recognizes a Latin American Studies student with a demonstrated commitment to the integration of scholarship and community engagement. The award honors the work of Emeritus History Professor Jim Stewart, founder of Macalester's Latin American Studies program and an expert on the processes and politics of conquest, labor systems, and slavery in the Americas. In 2010 he founded Historians Against Slavery, a 21st century abolitionist group dedicated to harnessing historical knowledge to combat modern slavery.

*Max Danielewicz*

## **LINGUISTICS**

**THE LINGUISTICS PRIZE FOR ACADEMIC EXCELLENCE**—Awarded by the faculty of the Linguistics Department to a senior major who has an overall high cumulative undergraduate grade point average and/or demonstrates evidence of research skills, such as the successful undertaking of a research project in linguistics or a related field.

*Caroline Hill Norfleet*

## **MATHEMATICS, STATISTICS, AND COMPUTER SCIENCE**

**BRESSOUD PRIZE** —Established by department colleagues and former Macalester students, the prize honors David M. Bressoud, who served in the department from 1994-2016 as professor and chair, and who is an award-winning expositor of mathematics. This prize is given to a senior Mathematics, Statistics, and Computer Science major in recognition of excellence in communication skills in mathematical, statistical, or computer science.

*Robert Joseph Angarone*

**CAMP ENDOWED PRIZE IN COMPUTER SCIENCE**—This prize is awarded to a senior major in the department for meritorious academic performance in Computer Science and contributions to department culture and community. The prize honors Professor Ezra J. Camp, who was professor and chair of the Mathematics Department 1939-1970.

*Rohit Kumar Bagda*

CAMP ENDOWED PRIZE IN MATHEMATICS—This prize is awarded to a senior major in the department for meritorious academic performance in Mathematics and contributions to department culture and community. The prize honors Professor Ezra J. Camp, who was professor and chair of the Mathematics Department 1939-1970.

*Yuren Pang*

KAPLAN AWARD FOR ACHIEVEMENT IN DATA SCIENCE—This prize is awarded to a junior or senior majoring in the department in recognition of an outstanding academic record coupled with demonstrated achievement on projects involving data science or statistics. This prize honors Professor Kaplan, who worked at Macalester from 1996-2017, and was funded by his colleagues and former students with a special gift from J.J. Allaire '91. Professor Kaplan had a profound influence in shaping the mathematics, statistics, and computer science curriculum at Macalester. He was a pioneer in bringing the field of Data Science to the liberal arts.

*Raven Isabella McKnight*

KAPLAN ENDOWED PRIZE IN DATA SCIENCE—This prize is awarded to a senior major in the department for meritorious academic performance in Data Science or Statistics and for contributions to department culture and community. This prize honors Professor Kaplan, who worked at Macalester from 1996-2017. It was funded by his colleagues and former students with a special gift from J.J. Allaire '91. Professor Kaplan had a profound influence in shaping the mathematics, statistics, and computer science curriculum at Macalester. He was a pioneer in bringing the field of Data Science to the liberal arts.

*Kieu-Giang Nguyen*

KONHAUSER ACHIEVEMENT AWARD—Established and funded by Frederic Deschamps '87 and family in honor of Dr. Joseph D. Konhauser, professor and chair of the Mathematics Department 1968-1991. Awarded to juniors or seniors majoring in mathematics and computer science in recognition of an outstanding academic record coupled with a demonstrated dedication to and interest in the field.

In Computer Science:

*Holly L. Hull*

In Mathematics:

*Connor Mack Thompson*

ROBERTS PRIZE—This prize is given by the department to honor a junior or senior majoring in mathematics or computer science in recognition of a dedication to the education of youth. This dedication will be demonstrated by work tutoring K-12 students, a keen interest in education policy, or through commitment to service teaching K-12 mathematics or computer science after graduation. This prize is established by department colleagues in honor of Dr. A. Wayne Roberts, who worked at Macalester from 1965-2005, as professor and chair of the Department of Mathematics and Computer Science, and in service as provost of the College. Through his work with Macalester students and faculty, and with the Minnesota State High School Mathematics League, which he founded in 1980 and led until 2009, Dr. Roberts has played an enormously important role in mathematics education in Minnesota.

*Trever Dillon Cramer*

WAGON COMPETITION PRIZE—This prize is given by the department to honor a student majoring in mathematics or computer science who has demonstrated the spirit of teamwork, creativity, cooperation, and a striving for excellence that we try to foster through the many competitions in which we participate. This award is named in honor of Dr. Stan Wagon, professor of Mathematics at Macalester from 1990-2012, who worked enthusiastically and tirelessly throughout his teaching career, training, inspiring, rewarding, and in all ways supporting students in their problem-solving and competition endeavors.

*Tae Woong Shin*

## **MEDIA AND CULTURAL STUDIES**

THE MEDIA AND CULTURAL STUDIES PRIZE FOR ACADEMIC EXCELLENCE—Awarded by the faculty of the Media and Cultural Studies Department to a senior major who has demonstrated outstanding academic achievement in media and cultural studies.

*Michael Sophaul Khuth  
Michael Tracy Lockhart  
Dí (Summer) Xú*

## **MULTICULTURAL AWARD**

LATINA AWARD FOR EXCELLENCE—Awarded to a Latina senior woman who has demonstrated outstanding academic achievement.

*Cristina G. Martin*

## **MUSIC**

LILA BELL ACHESON WALLACE ENDOWED PRIZE—Established by Mrs. DeWitt Wallace, co-founder of the Reader's Digest. Awarded to an outstanding student majoring in music.

*Anna Leone Rotolo*

FRIENDS OF MUSIC AWARD—Awarded by the Music Department to recognize an outstanding student for performance, academic work and service.

*Jesse Clarke Crosby  
Riley Jo Schlichte*

WALTER A. LIENKE ENDOWED PRIZE—Established by the testamentary bequest of Walter A. Lienke, a Macalester parent, to recognize outstanding students majoring in music.

*Henry Osborne Beimers*

TOBIN SMITH ENDOWED PRIZE—Established by Chester M. Tobin '23 and Edward M. Smith. Awarded to a student accomplished in the Scottish art of piping and drumming.

*Francesca Gugleilmone Gillis*

ZENAS TAYLOR ENDOWED PRIZE IN MUSIC—Established by Hazel Taylor in 1983 in memory of her husband, Zenas Taylor, '20. After her husband's death, Hazel made great sacrifices to establish this memorial prize honoring his love of music and Macalester, where his heart found joy. Awarded to a student majoring or minoring in voice.

*Eli Stanley Ratner*

## **NEUROSCIENCE**

THE NEUROSCIENCE PRIZE FOR ACADEMIC EXCELLENCE—Awarded by the faculty of the Neuroscience Program to a senior major who stands out for their academic excellence, commitment to advancing the field of neuroscience as exemplified by their research, scholarship, and/or community engagement, and intellectual curiosity in neuroscience.

*Jinci Lu*

THE NEUROSCIENCE PRIZE FOR OUTSTANDING COMMUNITY ENGAGEMENT—Awarded by the faculty of the Neuroscience Program to a senior major who stands out for their engagement with and commitment to the neuroscience community.

*Sa In (Shine) Chin*

NU RHO PSI—National honor society in the field of Neuroscience. Students who become members of *Nu Rho Psi* are selected based on their superior scholarly accomplishments as well as their excellent work in the laboratory. GPA of 3.6 is expected in neuroscience classes.

*Jinci Lu  
Dogukan Pasha  
Ariel Mei Roghair  
Riley Jo Schlichte  
Isabella Lauren Zikakis*

## **PHILOSOPHY**

THOMAS E. HILL PRIZE—Established by the faculty of the Philosophy Department. A year's subscription to a philosophical journal of the student's choice is awarded for outstanding work in philosophy.

*Sadie Nederveld*

THE JAKOB LAUB PRIZE—Established in honor of Jakob Laub by Hans Wendt, his nephew and former Macalester faculty member. Jakob Johann Laub (1884-1962) was a collaborator, long-time friend, and first co-author with Albert Einstein. In Argentina, Laub played a seminal role in introducing theoretical physics and relativity to South America and beyond. Awarded to an advanced student for an exemplary paper or honors thesis in the history and/or philosophy of science (including mathematics).

*Robert Joseph Angarone*

THE ROGER K. MOSVICK ENDOWED PRIZE IN PHILOSOPHY—Established by former students, Judge Jack Mason and James Fahlgren, in recognition of Dr. Roger K. Mosvick's contributions to the development of the department of communication studies and his 47 years of service to the college. Awarded by the permanent faculty of the Philosophy Department to a senior majoring in philosophy who has demonstrated academic excellence in the fields of critical thinking, argumentation and logic.

*Dalir Hodja Perry Kellett  
Tae Woong Shin*

THE HENRY R. WEST PRIZE IN PHILOSOPHY— Established by Macalester faculty, staff, alumni, and friends in recognition of Professor Henry R. West for his many years of teaching, scholarship, and service to the college. Awarded to a student who, in the judgment of the Philosophy Department, has written the best essay for the academic year in ethics, social philosophy, or political philosophy.

*Katharine Jia-hua Chen*

## **PHYSICS AND ASTRONOMY**

RUSSELL B. HASTINGS AWARD—Awarded to students for achievement in physics, who also demonstrate outstanding service to the Physics Department.

*Alyssa M. Bulatek  
James Michael Cannon*

THE SUNG KYU KIM AWARD—Established in honor of Professor Sung Kyu Kim and awarded to a physics and astronomy senior for the best capstone paper.

*Anya Wolterman*

THE RAYMOND MIKKELSON AWARD—Established in honor of Professor Raymond Mikkelson and awarded to a physics and astronomy senior for excellence in experimental physics.

*William Stephen Setterberg*

OUTSTANDING STUDENT CITIZEN AWARD—Given to the senior physics major who, in the eyes of their fellow students, stands out as being an advocate for student and departmental interests.

*Hannah Emily Gilbonio*

THE DR. SHERMAN W. SCHULTZ MEMORIAL AWARD—Established in memory of Dr. Sherman W. Schultz who taught astronomy at Macalester from 1958-1996. Presented to a senior physics and astronomy major with an emphasis in astronomy who has demonstrated both academic excellence and outstanding research.

*Lilly Bralts-Kelly  
Riley Anne McGlasson  
Andrew Mizener*

## **POLITICAL SCIENCE**

HUBERT H. HUMPHREY AND WALTER F. MONDALE ENDOWED AWARD IN POLITICAL SCIENCE—Established in 1977 to honor Hubert Humphrey and Walter Mondale. Hubert Humphrey was a Macalester faculty member, the Mayor of Minneapolis, a U.S. Senator, and Vice President of the United States. The Honorable Walter F. Mondale, '50, was the U.S. Attorney General, a U.S. Senator for Minnesota, and Vice President of the United States. The careers of these two men exemplify the highest standards of scholarship and education as well as service to society. The prize is awarded to one or more distinguished political science scholars.

*Abraham Benjamin Asher  
Ximena Sophia Silva-Avila*

PETER R. WEISMAN ENDOWED PRIZE—Established by family, friends, and alumni in memory of Peter Weisman '78 (1955–1980), who uniquely demonstrated his empathy for his fellow humans by helping them as individuals and through social and political institutions. Presented to a political science student who has demonstrated concern for and has worked with the underprivileged and is planning a career dedicated to helping others.

*Makayla Anne Barker*

BRENT WILLIAMS PRIZE—Established in the memory of Brent Williams, '73, by his parents, fellow students, and friends and relatives from Ottumwa, Iowa. Awarded to a political science major who has earned departmental honors or provided outstanding service to the department. Additionally, this student will have had experience in speech and debate and be active in the Macalester College community.

*Samantha A. Leo*

PI SIGMA ALPHA--National Political Science honor society. Open to juniors and seniors who have completed a minimum of four Political Science courses, three at the intermediate level and above, and who have a grade point average of at least 3.5 in Political Science and 3.2 overall.

*Makayla Anne Barker*  
*James Cooke*  
*Jesse Clarke Crosby*  
*Kathryn Elise Fleddermann*  
*Oriana Marie Galasso*  
*Karina Gerhardt*  
*Emma Ross Higgins*  
*Claire Louise Howland*  
*Maxwell Kent*  
*Laurel Kriesel-Bigler*  
*Samantha A. Leo*  
*Ryan J. Perez*  
*Jasmine Perket*  
*Lily Barbara Sherrill Schlieman*  
*Justin Michael Secor*  
*Ximena Sophia Silva-Avila*  
*Hamzah Yaacob*

## **PSYCHOLOGY**

WALTER D. MINK ENDOWED PRIZE—Established by Walter Mink, a professor in the Psychology Department at Macalester College for 38 years. Awarded to a student with a strong academic record who demonstrates great research potential and challenging plans for their senior research project. Additionally, the student will have demonstrated outstanding service to the Psychology Department, Macalester College, or the wider community.

*Courtney Eileen Brennan*  
*Maya Mohini Shenoy*

PATERSON AWARD NOMINEE—Macalester's nominee for the award given by the Minnesota Psychological Association to the most promising senior in Minnesota planning a career in psychology. The student also receives an award provided by the Walter D. Mink endowed prize fund.

*Cristina G. Martin*

JACK ROSSMANN ENDOWED PRIZE—Established in 2004 by Jack and Marty Rossman. Professor Jack Rossman taught in the Macalester Psychology Department for many years until his retirement in 2004. Presented annually to a graduating senior psychology major with an excellent academic record and distinguished contributions in the application of academic psychology through activities such as applied research, internships, or community service.

*Nuria Morales Coskran  
Deborah Yvonne Pickford*

PSI CHI--National honor society in Psychology. Its purposes are to encourage, stimulate and maintain excellence in scholarship and advance the science of psychology. Open to juniors and seniors who have a major in Psychology and who have a cumulative grade point average of at least 3.5.

*Jane Celine Acierno  
Molly Westcott Adams  
Courtney Eileen Brennan  
Valeria Bustamante Callejas  
Kathryn Elise Fleddermann  
Lilliana Elizabeth Kay  
Cristina G. Martin  
Kristina Marie McKenzie  
Nuria Morales Coskran  
Kristina E. Nazarova  
Lydia Stoke Simpson  
Amber Raye Stuedell  
Emma Rose Wellman*

## **RELIGIOUS STUDIES**

ARLINE AND ROBERT A. CAINE MEMORIAL PRIZE—Established in 1976 in memory of Arline and Robert Caine by their friends and family. Mr. Caine served Presbyterian churches in Red Wing, MN, Duluth, MN, and Rochester, NY. In addition, Mr. Caine served as a Minnesota synod executive and as a Macalester College trustee for many years. Awarded to seniors planning to pursue graduate work in religious studies.

*Autumn Jeanne DeLong  
Ethan Nosanow Levin*

## **RUSSIAN STUDIES**

VIRGINIA McKNIGHT BINGER PRIZE—Awarded to an outstanding student who demonstrates an exceptional proficiency in Russian language and related studies.

*Mallie Claire Kermiet*

## **SOCIOLOGY**

**BERRY-RINDER-SWAIN PRIZE**– Established in honor of Emeritus Professors Paul Berry, Irwin Rinder and Al Swain. Awarded to a senior major for academic excellence and positive contributions to the life of the department.

*Susanna Eloisa Morales*

## **SPANISH AND PORTUGUESE**

**VIRGINIA McKNIGHT BINGER PRIZE**–Awarded to an outstanding student who demonstrates an exceptional proficiency in Spanish or Portuguese.

*Edwin David Reyes Herrera*

**DONALD L. FABIAN PRIZE**–Established by an alumnus of the Department of Spanish and Portuguese in honor of Professor Emeritus Donald L. Fabian. Awarded to an outstanding graduating Spanish major who either intends to enter graduate school in an area directly related to his or her Spanish major or to pursue a career that closely involves significant use of the Spanish language.

*Annika Wray Jorgensen*

**SPANISH AND PORTUGUESE DEPARTMENT FACULTY AWARDS**–Presented to students who have demonstrated outstanding accomplishment in the study of Spanish and Portuguese language and/or literature.

Spanish Advanced Level:  
*Kathleen Angelina Hunter*

Portuguese Advanced Level:  
*Samuel David Hopkinson*

**SPANISH AND PORTUGUESE DEPARTMENT SERVICE AWARD**–Awarded to a student in recognition of significant contributions to the life of the Spanish and Portuguese Department.

*Hannah Emily Gilbonio*

**SIGMA DELTA PI**--National Hispanic honor society. Open to students who have completed at least six courses above the intermediate level with a grade point average of at least 3.0 and who show strong interest in the Hispanic language and culture.

*Anne Roise Mallaidh Greene  
Holly Elaine Hagstrom  
Kathleen Angelina Hunter  
Alexander J. Morateck  
Edwin David Reyes Herrera*

PHI LAMBDA BETA—National Portuguese honor society. It offers recognition to those students with high achievement in the area of advanced Luso-Afro-Brazilian Literature and Culture. Members rank in the upper 35% of their college class, and have maintained a 3.0 or better GPA in their coursework in the Department of Spanish & Portuguese. Macalester's chapter, Mu Nu, was begun in the spring of 2017.

*Benjamin Leon Bildsten*  
*Melanie Guardado*  
*Samuel David Hopkinson*  
*Juliet Sarai Kelson*  
*Anyra Rae Ptáček*  
*Benjamin Coltrane Townsend*

## **THEATRE AND DANCE**

RUTH EASTON ACHIEVEMENT AWARDS— Given annually through the Theatre & Dance Department to graduating senior major(s) who have excelled, through coursework and applied stage work, as scholars and artists. In choosing the Ruth Easton Awardee(s), THDA faculty and artistic staff consider three criteria: excellence in the student's area of emphasis within the major, measured in both GPA and in project work; leadership in the department and on campus; quality, depth and commitment in the senior capstone project.

*Jesse Claire*  
*Alexandra Rey Whitman*

DAVID WICK ENDOWED PRIZE FOR EXCELLENCE IN LEADERSHIP— Established by David Wick '91, given to a senior who has invested time and energy into guiding other students, contributing to the functioning of the dance program, and serving as a role model for commitment to dance.

*Meghan Johnson*

## **WOMEN'S, GENDER, AND SEXUALITY STUDIES**

WOMEN'S, GENDER, AND SEXUALITY STUDIES DEPARTMENT PRIZE—Established and awarded by the faculty of the Women's, Gender and Sexuality Studies program. A cash award to honor outstanding scholarship and significant contributions to issues of women, gender and sexual orientation.

*Elizabeth Anne Everitt*

## **PHI BETA KAPPA**

Election to Phi Beta Kappa recognizes outstanding scholarship in the liberal arts and sciences. Election is limited to the top twelve percent of the senior class. All candidates must have demonstrated knowledge of mathematics and of a foreign language at least minimally appropriate for a liberal education.

*Joseph Anthony Baldus*  
*Caroline Behling-Hess*  
*Melissa Margaret Blum*  
*Marina Rae Brendel*  
*Claire Louise Buehler*  
*Katharine Jia-hua Chen*  
*Winnie Chen*  
*Marie Abigail Crane*  
*Jasmine Davidson*  
*William Timothy DeBruin*  
*Autumn Jeanne DeLong*  
*Ignasi Dorca*  
*Liam Jacob Edwards-Gaherty*  
*Ema Elizabeth Erikson*  
*Jack Raymond Freier*  
*Katya Brooke Gurgel*  
*Katherine Maria Hahn*  
*Isaac Schakowsky Hart*  
*Emma Lynne Heth*  
*Holly L. Hull*  
*Caleb Arthur Huntington*  
*Stella Matutina Ikuzwe*  
*Annika Wray Jorgensen*  
*Dalir Hodja Perry Kellett*

*Ingrid R. Kilde*  
*Jennifer Koehler*  
*Jinci Lu*  
*Meng Luo*  
*Roni Margalit*  
*Spencer David McAllister*  
*Phuong Minh Nguyen*  
*Meihua Pan*  
*Dogukan Pasha*  
*Ariel Mei Roghair*  
*William Henry Sandy*  
*Tae Woong Shin*  
*Esther Claire Swehla*  
*Jinzhou Tian*  
*Madison S. Tuffield*  
*Kai Walberg*  
*Jacob Daniel Weightman*  
*Emma Rose Wellman*  
*Eleanor J. Wettstein*  
*Anya Wolterman*  
*Jiawen (Xavier) Xin*  
*Shiyue Zhong*  
*Isabella Lauren Zikakis*

## **FULBRIGHT GRANTS**

Fulbright Grants are awarded with the cooperation of the Department of State, foreign governments, and private donors for study, research and assistantships in some 155 countries of the world.

Fulbright Combined Grant to Austria:

*Jessi Alexander Brandon*

Fulbright English Teaching Assistantship to Azerbaijan:

*Gianna Elena Brassil*

Fulbright English Teaching Assistantship to Germany:

*Theodore Caskey*

Fulbright English Teaching Assistantship to Spain:

*Kathleen Angelina Hunter*

Fulbright English Teaching Assistantship to Taiwan:

*Caroline Hill Norfleet*

Fulbright English Teaching Assistantship to Nepal:

*Samuel Ryckaert*

## **THOMAS J. WATSON FELLOWSHIP**

The Thomas J. Watson Fellowship is a one-year grant for purposeful, independent exploration outside the United States, awarded to graduating seniors nominated by one of 41 partner institutions.

*Michael Sophaul Khuth*