



Macalester College
Senior Honors and Awards

2021

May 2021

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 2021. 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 2021 the very best in the years to come.

Ann Minnick
Director of Academic Programs and Advising

HONORS PROJECTS

Madison May AlQatami

Modeling and Forecasting U.S. News & World Report College Rankings

The *U.S. News & World Report (USNWR)* annual college ranking lists are widely-circulated measures of the comparative quality of higher education institutions. These rankings shape the admission decisions of prospective students and the admissions policies of ranked institutions alike. *USNWR*'s "Best National Liberal Arts Colleges" ranking for 2020 was generated by combining 14 weighted institutional statistics, or *subfactors*, for each institution. However, the process by which subfactor data is manipulated is not fully disclosed by the publication. In this paper, we effectively model the 2020 ranking list using an elastic net approach, forecast future subfactor values for all ranked institutions based on historical data using univariate time series simulation, and apply the elastic net model to our forecasted data to project rankings for 2021. We use these projected rankings to understand what constitutes a significant change in rank for an institution and determine the most effective course of action if Macalester College wishes to efficiently improve its rank while staying true to its mission. Through this process, we successfully predict the 2020 rank of the top 40 institutions within approximately 4 places of their published rank. In addition, we isolate the 5 subfactors that, with improvement in their values, have the highest potential to improve Macalester College's rank in 2021: Alumni Giving Rate, Peer Assessment Score, Spending Per Full-Time-Equivalent Student, Percentage of Classes Under 20 Students, and Average Adjusted Faculty Salary.

Honors Project in Mathematics, Statistics and Computer Science

Advisors: Vittorio Addona and Alicia Johnson

Mathematics, Statistics and Computer Science Department

Wanda Barradas

We Got Us: Creating Radical Communities through Illegality

Undocumented immigrants have always been used by politicians as a bargaining chip living in limbo, but they are no longer hiding under the shadows and have used their status as empowerment. In addition to a legal status, undocumented immigrants share compounded salient identities as first generation, low income, queer, and people of color and have to navigate all of these identities and experiences simultaneously. A new form of illegality studies has begun to analyze how the product of illegality creates conditions of an illegalized identity, so undocumented folks have mobilized against these structures upholding political identities. Undocumented activists have adopted an identity mobilization model cultivating an

intersectional collective identity centered around illegality for political mobilization and successful social movements. However, I expand on how undocumented folks have followed this similar model but to create unintentional spaces of community still centered around illegality and intersectionality. In my research, I ask: how does illegality shape the experiences of undocumented immigrants? How do they embrace illegality? And, how do they find community, joy, and resistance? Through in-depth interviews, an auto-ethnography, and Twitter analysis, I find that undocumented immigrants create radical communities by their shared illegality and other intersectional identities in five emerging themes: 1) support through mutual aid and sharing resources, 2) solidarity when immigration related events happen, 3) rejection of a DREAMer narrative, 4) accountability in calling out citizens co-opting migration stories, and 5) relatable content only undocumented folks could understand. I explain how undocumented immigrants have begun to create their own unintentional radical spaces and communities where undocumented immigrants can feel recognized and supported.

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

Betsy Frances Barthelemy

Six Impossible Things Before Breakfast: Girlhood in the Creation, Content, and Consumption of Victorian Children’s Literature

The Golden Age of (British) Children’s Literature was famous not only for the proliferation of fiction it hosted, but also for how much of that work featured young heroine protagonists. Starting with the publication of *Alice’s Adventures in Wonderland* (1865) and examining two other fantasy works compared with three realistic children's novels from this half-century period, this project elucidates the differences between these genres and examines how authors used the characteristics of each to empower their heroines. It argues that these fictitious heroines influenced real-world readers to create progressive futures by providing examples of rebellious girl characters finding happy endings.

Honors Project in English
Advisor: Andrea Kaston Tange
English Department

Conor Hogan Broderick

Synthesis, Characterization, and Computation of Air-Stable Aromatic Diimide Radical Cations

Air-stable organic radicals have applications in OLEDs, semiconductors, and redox-flow batteries, among other technologies. Aromatic diimide molecular scaffolds are particularly appealing radical precursors due to their electron-poor core and myriad functionalization possibilities. This project details the synthesis and characterization of four aromatic diimide derivatives, two based on naphthalene diimide (NDI) and two on mellophanic diimide (MDI), using bidentate phosphorus nucleophiles. Experimental and computational data indicate accessible, air-stable monoradical states for all synthesized compounds. Additionally, a computational investigation of synthesized compounds and future targets illuminates the effects of geometry, shoulder/core heteroatoms, and noncovalent interactions on radical stability and electronic structure.

Honors Project in Chemistry
Advisor: Dennis Cao
Chemistry Department

Elizabeth Marie Burton

Tulsa Wealth Disparity: The Legacy of the 1921 Race Massacre on Local Housing and Economic Development Policies

Public policies rooted in systemic racism and racialized violence have stripped wealth from Black Americans. Is this wealth disparity heightened in Tulsa, Oklahoma, home to one of the worst incidents of racial violence in America? I shed light on this question by analyzing local housing and economic development policies and supplemental census data in Tulsa and Oklahoma City. I find that the Race Massacre has lasting detrimental effects on the racial wealth gap in Tulsa, likely exacerbated by policies in the 1960s-70s and the 2000s. Local and federal reparations are necessary to address a century of racialized dispossession in Tulsa.

Honors Project in Political Science
Advisor: Lesley Lavery
Political Science

Hannah Diane Catlin

Structured for Success: Activist Networks as Key to Organizing Victories at Macalester

Macalester’s identity as a college is deeply rooted in its commitments to social justice, activism, and multiculturalism. As such, it has a rich history of student social movements defined by unique, decentralized networking structures forming out of the constraints of working in a college environment. In terms of structure, what do successful Macalester social movement organizations look like? I argue that Macalester social movement organizations form concentrically nested structures and that these networks in concert with organizational tactics lead to success or failure in terms of goal acquisition. I draw on the history of Macalester student social movement organizations, highlighting four unique case studies in which students targeted the administration hoping to change college policy: Expanded Educational Opportunities protestors in the 1970s, the Dream Act Committee, Kick Wells Fargo off Campus, and Fossil Free Macalester.

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

Yilin Chen

Signal Processing on the Permutahedron: Tight Spectral Frames for Ranked Data Analysis

In a ranked data set where each voter specifies a preference ranking of n candidates, the ranked data is the vote count for each ranking. We can view ranked data as residing on the vertices of the permutahedron, which is the Cayley graph of the symmetric group with vertices labeled by permutations and edges representing adjacent transpositions. Using tools from both graph signal processing and group representation theory, we investigate a novel ranked data analysis method to identify, interpret, and exploit structure in these rankings. Our method combines spectral graph decomposition from signal processing with symmetry decomposition from representation theory to create an overcomplete dictionary of atoms, each of which captures both smoothness and structural information of data on the permutahedron. Aside from having naturally interpretable structures, these atoms also form a tight Parseval frame, which ensures the energy preservation property. Our proposed construction of tight spectral frames can also be generalized to any finite groups.

Honors Project in Mathematics, Statistics, and Computer Science
Advisors: Tom Halverson and David Shuman
Mathematics, Statistics, and Computer Science Department

Federico Chung

The Power of Information: Information, Leak Notices, and Water Conservation in Edina, MN

This paper provides evidence that past consumption information provision has limited effects on consumer water conservation efforts. I use quarterly household consumption data to test the effect of a new residential water billing system on water consumption. The updated billing format was created as the utility transitioned from a manual meter reading system (MMR) to an automatic metering infrastructure (AMR). Improved billing information appears to have increased low-baseline household's water consumption. I also study impacts of another source of improved information provision, water leak notices. Households respond to high-consumption notices significantly reducing consumption, even relative to baseline-levels. However, consumption reductions of these one-time notices wane over time as consumers return to baseline consumption levels after 3 quarters. Overall, the findings suggest limited consumer-side benefits of AMR adoption.

Honors Project in Economics
Advisor: Gabriel Lade
Economics Department

George Francis Clare Kennedy

An Algorithmic Exploration of Gracefully Labeling Cubic Graphs

The graceful labeling problem is a famous open problem in mathematics and computer science, first described by Alexander Rosa in 1967. The object of the problem is given a graph, is there a way to label the vertices of that graph uniquely with the numbers 0 to m , where m is the size of the graph, such that when its edges are labeled with the absolute differences of the vertex labels, the edges are labeled uniquely? Many different classes of graphs are conjectured to be graceful, the most famous being trees. This paper explores another class of graphs, connected cubic graphs, conjectured to be graceful by El-Zanati and Wannasit (2010) and shows that this is true for cases of graphs with 16 vertices or fewer. To do this, we use a backtracking algorithm to explore cubic graphs and other interesting classes of regular graphs.

Honors Project in Mathematics, Statistics, and Computer Science
Advisors: Kristin Heyse and Lauren Milne
Mathematics, Statistics, and Computer Science Department

Asher Abraham Goldberg de Forest

I'm Going to Go Back There Someday: Reading, Writing, and Directing Hauntings in Four Plays

In this personal and formal research essay, I discuss and compare the plays *A Raisin in the Sun*, *Fefu and Her Friends*, *Angels in America*, and *I'm Going to Go Back There Someday* (my own work, which I am also directing in partial fulfillment for Honors in Theater and Dance). These plays all bring forth hauntings, despite and in some cases because of their differences in content and style—ranging from realism to the avant-garde. I base my discussion of hauntings on Avery F. Gordon's writing. I explore hauntings through close readings, playwrights' lives and identities, and directing possibilities and practices.

Honors Project in Theater and Dance
Advisor: Harry Waters Jr.
Theater and Dance Department

Purichaya Eiamkanchanalai

Sino-Thai Identity in Southeast Asia's Ethnic Chinese Network

The Thai-Chinese community is part of the ethnic Chinese network in Southeast Asia granted by their fluid Sino-Thai identity. Since Thailand encouraged political assimilation over cultural assimilation, the Chinese community was able to maintain its cultural identity, but not all cultural traits were passed down. Most notably is the linguistic trait that separated the earlier generation of Chinese migrants. I argue that this linguistic identity makes the ethnic network more complicated; however, because of the generational shift away from linguistic identities, the network is now backed by a shared underlying business culture more than ever before.

Honors Project in Political Science
Advisor: David Blaney
Political Science Department

Gabi Estrada

Fluidity as Resistance: Latinx Artists Navigating Whiteness and Identity Construction in the Twin Cities

The pervasiveness of whiteness at the institutional level that calls for the need to place a fixed label on oneself shapes the way people construct their ethnic identities. This paper investigates LGBTQ+ Latinx artists navigating the effects of whiteness on their identity formation in the Twin Cities metropolitan area. Empirically, I found that through the help of their family and the arts, the LGBTQ+ Latinx community formulates an emerging Queer ethnic identity in resistance to living in a white geographic environment. Theoretically, I argue that by looking at the intersectionality of queer and ethnic identity constructions, I identify the role of fluidity in challenging the ways in which whiteness enforces strict labels. I work with Sara Ahmed's theory of Queer phenomenology to expand our understanding of ethnic identity construction and highlight its fluidity. I conducted in-depth interviews in the Twin Cities between 2020 and 2021 with LGBTQ+ Latinx Artists to learn about this community's sources of identity construction, their articulation of their identities, and the reasons why the arts have become such a prominent outlet of expression among this community. My findings conclude that this community shifts the boundaries of ethnic identity construction by embracing their fluidity, feels erased and isolated under the pressures of whiteness, and works for their autonomy in combating their erasure by asserting their own identities through the arts.

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

Kendall Ann Batson Ford

Examining the Timing of Shallow-Angle Subduction of the Farallon Plate in the Western United States: Zircon U-Pb Geochronology of the Schist of Sierra de Salinas

The schist of Sierra de Salinas (central California) is a metasediment originating from accretionary wedge materials accumulated along the North America-Farallon plate boundary. The schist's protolith was subducted and metamorphosed during a shallow-angle subduction episode of the Farallon Plate. Ion microprobe and laser ablation analysis of zircons from a sample collected from a high-grade portion of the schist of Sierra de Salinas yields a weighted mean age of 78.2 +/- 0.8 Ma. This age likely reflects the timing of the schist's metamorphism, corroborating earlier work indicating that metamorphism took place within a 81-72 Ma window.

Honors Project in Geology
Advisor: Alan Chapman
Geology Department

Willow Rousseau Fortunoff

The Power to Define a People: Hegemonic Influence on Argentine Immigration

Argentina is known as a “country of immigrants” yet simultaneously grapples with entrenched xenophobia. My research untangles this apparent contradiction by revealing how both facets of national identity are rooted in racialized colonial ideology. Following independence in 1816, Argentine elites used immigration policies to justify the exploitation of Black and Indigenous communities and subsequent European repopulation. Elites converted non-Europeans into cultural “foreigners” by erasing them from the country's national identity, and I use foreign policy frameworks to demonstrate how leaders have consistently wielded immigration as a political tool to further their own objectives. I argue that the lack of political representation has allowed colonial-era prejudices to remain largely unquestioned. Using a foundation of critical race and postcolonial theory, my thesis incorporates 18 months of historical research and interviews with some of the most influential stakeholders in Argentine immigration to tell a story about the power to define a country's peoples.

Honors Project in Political Science
Advisor: David Blaney
Political Science Department

Sophie Freedman

Punishment, Divine Justice, and Incarceration: Tracing the Impact of Protestant Christianity from Enlightenment to the Present

This paper examines the Protestant origins of national ideas about punishment to help understand the U.S. crisis of mass incarceration. I demonstrate that the foundations and justifications for the carceral system lie at the intersection of Christian hegemony, White supremacy and capitalism. First, I trace relationships among Protestant theories of atonement, punishment, and redemption through key historical moments of prisons in the U.S. and Europe. Second, I provide a discourse analysis of first-person interviews with incarcerated people who discuss their Protestant religious experiences related to incarceration. I argue against a punitive faith-based approach and for a relational, restorative ideology and approach to public safety.

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

Hai-Chau Giang

A Comparison of Bootstrap and K-Fold Cross-Validation as Test Error Estimators

Since the training error tends to underestimate the true test error, an appropriate test error estimator is necessary to evaluate and select predictive learning models. Our research builds on previous results to compare the single bootstrap and k-fold cross-validation, with a wider variety of parameters underlying the data causal structure, learning models and test error estimators. Using simulated data from a causal graph, we compared cross-validation estimates and bootstrap estimates with the true test error for LASSO and random forest models in varied parameter settings. We found that bootstrap underestimates the test error for both models, while k-fold cross-validation underestimates the test error for LASSO and performs well for random forests.

Honors Project in Mathematics, Statistics and Computer Science

Advisor: Leslie Myint

Mathematics, Statistics and Computer Science Department

Ellen Sandra Graham

Computationally Efficient Spatiotemporal Generalized Linear Modeling

Spatiotemporal data is a common occurrence in a variety of fields such as ecology and epidemiology. However, observations are often spatially and temporally correlated, leading naive models of such data to underestimate variance in parameter estimates. Furthermore, methods that do account for this spatial and temporal dependence often take prohibitively long to estimate due to their computational complexity. This paper extends a computationally efficient method for spatial modeling to the spatiotemporal domain while retaining its computational efficiency. We implement this method and examine its effectiveness using a simulation study and by applying it to Carolina Wren population counts in the United States between 1990 and 2010. We find that it performs favorably compared to the naive approach and is significantly more computationally efficient compared to the full spatiotemporal model. Additionally, it requires much less expert knowledge to specify compared to comparable methods, making this method an attractive approach for users with less experience with spatiotemporal modeling.

Honors Project in Mathematics, Statistics, and Computer Science

Advisors: Brianna Heggseth and Alicia Johnson

Mathematics, Statistics, and Computer Science Department

Ana Gvozdić

Memorialization of Children in War in Serbia, Bosnia and Herzegovina, and Kosovo

Can remembering the tragic fate of children in war help overcome the divisive narratives of the past in Serbia, Bosnia and Herzegovina, and Kosovo? This paper addresses this question by examining efforts to commemorate children in war in these countries through monuments, exhibitions, and other creative formats, including a video and a theatrical performance. Based on in-depth, qualitative interviews with civil society representatives behind these initiatives, and those familiar with them, I argue that efforts to commemorate children in war can both consolidate and challenge divisive victimization narratives. When memorialization efforts go beyond victimization, their emphasis on children in war can emerge as a powerful tool in service of peace and reconciliation.

Interdepartmental Honors Project
Advisor: Nadya Nedelsky
International Studies Department

Aubrey Avonelle Hagen

Pulling the Food System Up by the Roots: How Do We Build a Crisis-proof Food System in the Twin Cities?

Prior to 2020, food insecurity was already a pervasive problem in the United States, with limited access to adequate, nutritious foods being linked to numerous poor physical and psychological outcomes. With the onset of the Covid-19 pandemic and civil uprisings in response to police brutality and state-sanctioned violence, the Twin Cities communities are facing overlapping crises that threaten individual and community wellbeing and food security. How do we build a just, equitable, and “crisis-proof” food system? Drawing from theoretical frameworks in social epidemiology and radical food geography, this paper assesses how the local food system and community food insecurity in the Twin Cities have been impacted by crises and the lessons presented by community responses to crises. Focus groups with community advocates and stakeholders in the Twin Cities are combined with PhotoVoice activities, a community participatory research method in which participants document their experiences with pictures and videos. Participants shared their knowledge on the interplay of socio-ecological and systemic factors that have contributed to both crises and inequality in the food system, as well as their visions for transformative change in the local food system. Qualitative thematic analysis produced themes that link disparate impacts of crises and inequality in the food system to white supremacy, racial capitalism, state violence, and environmental apartheid. Participants co-created a vision for an equitable and sustainable food system that embodies an idea described as “the

food circle", using local agriculture as a tool to build community, achieve transformative systemic change, and create a "Green" future.

Honors Project in Geography
Advisor: Eric Carter
Geography Department

Claire Elizabeth Hamerlinck

Killed for Country: A Transitional Justice Approach to the Ongoing Genocide of Aboriginal and Torres Strait Islander Peoples in Australia

How is reconciliation possible between the state of Australia and the First Nations peoples of the Australian continent, when the genocide of the latter extends so far into the past and is ongoing today? Through examining inquiries into the treatment of Indigenous peoples from Australia and Canada, I argue that the temporal and contextual scope of transitional justice should be expanded to address colonial genocides. I also argue to expand the definition of 'genocide' to incorporate cultural genocide. While each situation of implementing transitional justice is unique, the voices and needs of Indigenous peoples should inform which mechanisms are implemented and how.

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

Lena Kristina Heino

Doc in the Box: Diabetes Care and Management in the Time of COVID-19

Of patients with COVID-19, 94 percent of deaths are patients with pre-existing conditions of pneumonia, hypertension, and diabetes. Current research shows the comorbidity of patients with COVID-19 and Type 2 Diabetes. Despite a growing literature on the interaction of these two diseases, most research focuses on physiological interactions. There remains a pressing need for research on the biosocial mechanisms contributing to the interaction between Diabetes and COVID-19. This research focuses on the social conditions constructed during COVID-19 that influence the care and management of Type 2 Diabetes. To investigate the topic, I conducted interviews with healthcare providers and community leaders in Taos, New Mexico, having rates of Type 2 Diabetes higher than the national average. I argue that the transfer of diabetes care to online platforms changes the doctor-patient relationship and diminishes the human connection and empathy needed for effective chronic disease care. The subsequent lack of human interaction

and the resulting isolation and alienation during the pandemic hinders the necessary lifestyle changes for managing Type 2 Diabetes. The drastic changes in daily life and community roles transform and limit the mechanisms to which we create meaning, leaving diabetic patients the task of constructing new meaning while managing a chronic disease. The high rates of morbidity among COVID-19 patients with diabetes motivate research into the social factors affecting the disease interaction.

Honors Project in Anthropology
Advisor: Ron Barrett
Anthropology Department

Elizabeth Hrycyna

Urban Air Quality and Redlining: The Legacy of Urban Housing Segregation on Modern Day Air Pollution and Fossil Fuel Emissions

Redlining was a practice of financial discrimination in the mid-20th century in which federal banks refused loans or increased interest rates based on the grade of an applicant's neighborhood designated by the federally-sponsored Home Owner's Lending Commission (HOLC). HOLC graded neighborhoods based on the racial makeup and economic status of the residents, and this practice can be traced to modern day economic, demographic, and environmental inequalities between neighborhoods that were graded poorly and those that were graded well. The legacy of redlining on modern day urban air quality, which presents a significant threat to public health, has not been well studied. This study used a mixed-methods approach to determine if neighborhoods that received a poor HOLC grade experience a disproportionate burden of poor air quality. Concentrations of the air pollutants nitrogen dioxide (NO₂), carbon monoxide (CO), and ozone (O₃) were taken from satellite data for eleven large Midwestern cities, and fossil fuel emissions, a proxy for certain air pollutants, were calculated from carbon isotope ratios in a case study of St. Paul, Minnesota. NO₂ concentrations were found to be as much as 28% higher in neighborhoods that received the worst grade than those that received the best, while CO, O₃, and fossil fuel emissions were not found to vary significantly between HOLC grades. These results present evidence of modern-day inequality in urban air quality that can be traced back to redlining, and should be used as an argument for government action improving air quality in neighborhoods that were poorly graded by HOLC.

Honors Project in Biology
Advisor: Mary Heskell
Biology Department

Zuofu Huang

Estimating Significance Thresholds and the Number of Generations since Admixture in Admixture Mapping Studies

In this thesis, we develop statistical methods for studying human genetics among people with mixed ancestry. A large majority of genetic studies have focused on populations of European ancestry, while populations with a more diverse genetic ancestry are underrepresented. First, I implement computational improvements on the existing R package STEAM, which estimates the genome-wide significance threshold in admixture mapping studies. Next, I explore how the estimation of the number of generations since admixture may be impacted by the population structure. We hope that our work will provide new perspectives on understanding the number of generations since admixture events.

Honors Project in Mathematics, Statistics and Computer Science
Advisor: Kelsey Grinde
Mathematics, Statistics and Computer Science Department

Erin Tarvin Isomura

Vlogging in Fatigues: What it Means to Vlog as a Woman in the Military, and What it Means to Watch Them on YouTube

Vlogs posted to the video sharing website YouTube by enlisted or commissioned service women focus on fun and lesser known aspects of what it means to serve as a woman. Yet beyond the novelty, military vlogs implicitly instruct the viewer on how to be successful contemporary citizens. This thesis focuses on how three key ideological systems work together in the videos: displays of neoliberal productivity and self-reliance; postfeminist empowerment through being feminine in the masculine military; and the military itself as a source of entertainment, without acknowledgement of the Department of Defense's problematic central function as an institution.

Honors Project in Media and Cultural Studies
Advisor: John Kim
Media and Cultural Studies Department

Chloe Madeleine Brauer Kahn

Bone Modification in Microfossil Bonebeds of the Upper Cretaceous Hell Creek Formation of Eastern Montana

Tiny mm-scale vertebrate microfossils yield important insights into the processes of fossilization. The Maastrichtian Hell Creek Formation of Montana preserves abundant vertebrate microfossils in localized bonebeds that yield assemblages of disarticulated and diverse vertebrate hard parts (mm-cm in size). I investigated modifications on bone from two bonebeds to compare preservation in an ancient river versus an ancient lake. Collections were studied using a stereomicroscope and described utilizing protocols that I developed specifically for microfossils. Results indicate more intense weathering, rounding, and polish at the high energy river site, whereas the lake site exhibited more flaking and a greater relative abundance of intact fragile bones. Bone modifications in microfossil bonebeds are reliable indicators of depositional environment.

Honors Project in Geology
Advisor: Ray Rogers
Geology Department

Adar May Kamholtz-Roberts

Touching Queerness: Performing Utopia in a Public Bathroom

The paper and site-specific dance film that I created weave together site-specific dance and queer theory. I examine theories of queer utopia, and site-specific dance's ability to multiply the meanings of everyday spaces. Using my tactile gaze to dance in a men's bathroom on campus, I insert trans joy into a space that represents the creation and control of gender. This project contributes to traditions of site-specific dance that interrogate the meanings of bodies and places, and I use my body to question the movement scripts that create hierarchies within the everyday.

Honors Project in Theater and Dance
Advisor: Wynn Fricke
Theater and Dance Department

Adar May Kamholtz-Robert

The Bathroom is a Body: Trans Site-Specific Dance and the Creation of Utopia

This paper and filmed dance performance construct site-specific trans utopia in everyday space. Informed by Muñoz's theory of queer utopia as individual performances within the present, I examine trans citizenship outside of nation-building models. I put this trans citizenship into practice through site-specific dance, creating a dance in a men's bathroom on Macalester campus. This work contributes to traditions of performance studies and queer theory that question and multiply the meanings of public space. Subverting the disciplinary power of the bathroom, I choreograph trans utopia and hint at the possibility of queer future even in locations of social control.

Honors Project in Women's, Gender, and Sexuality Studies

Advisor: Sonita Sarker

Women's, Gender, and Sexuality Studies Department

Jillian Kristine Kirk

Constraining the Metamorphism of The Schist of Sierra de Salinas and Shallow-Angle Subduction Using U-Pb Zircon Geochronology

The schist of Sierra de Salinas of central California originated as a sandstone deposited along the western margin of the continent, derived primarily from the Sierra Nevada Batholith. This body of rock was subducted along a shallow segment of the Farallon plate, bringing it in direct contact with recently emplaced granitic plutons in the upper plate, and leading to high-temperature metamorphism. In this paper, age ranges of detrital and metamorphic processes are further constrained using U-Pb zircon geochronology. From this work it is clear that the schist derived from a protolith formed ca. 84.5 Ma and metamorphosed ca. 79.1 Ma.

Honors Project in Geology

Advisor: Alan Chapman

Geology Department

Stephanie Konadu-Acheampong

An Invisible Spectrum: Navigating Society as an Asexual Woman of Color

Research on asexuality is fairly recent, and the area is still relatively understudied. While previous studies have examined demographic factors associated with asexual populations—including gender diversity, few have studied how these demographic factors might impact asexual individuals’ experiences; further, despite the mutually reinforcing and interlocking nature of race, gender, and asexuality, no study has examined them in tandem. To address this gap, the current qualitative study drew upon interviews, guided by constructivist grounded theory, conducted with seven asexual (ace) women of color. Using the consensual qualitative research method, six themes emerged from the data: (1) negotiation of insider/outsider status, (2) questioning identity/identity uncertainty, (3) family and cultural expectations, (4) societal reception and perception of asexuality, (5) otherization from American society and its effects, (6) support networks and resilience. The findings highlight the unique challenges that result from asexual individuals living at the intersection of multiple marginalized identities— sexual orientation, ethnic/racial identity, and gender— and how they create space for expressing their whole selves despite invalidations from American society, their racial/ethnic community, religious communities, the ace community, and the LGBTQ+ community. The implications of this study may address the unique needs of ace women of color’s wellbeing, belonging, and identity development, including emphasizing the importance of healthy and affirming relationships.

Honors Project in Psychology
Advisor: Morgan Jerald
Psychology Department

Scotland Ross Kraker

Follow the Money? Analyzing the Impact of Fundraising on Candidate Withdrawals in the 2020 Democratic Presidential Primary

This paper seeks to expand on the literature explaining why candidates exit presidential primaries using the 2020 Democratic presidential primary as a case study. Using an event history model I compare cash on hand, a traditional indicator of financial success, with a new indicator which takes into account a candidate's relative position in the field. My results find that while both variables are correlated with candidate exit among all candidates, daily relative position is statistically significant across relevant candidate subgroups and is perhaps better equipped to deal with fundraising outliers, suggesting new avenues for future research on the topic.

Honors Project in Political Science
Advisor: Julie Dolan
Political Science Department

Anael Kuperwajs Cohen

Factors Influencing the Social Help-Seeking Behavior of Introductory Programming Students

Collaboration is an important aspect of computing. In a classroom setting, working with others can increase a student's motivation to attempt more challenges, reduce the difficulty of complicated concepts, and bring about greater overall success. Despite extensive research in other domains, there has been minimal exploration within computing on what impacts a student's decision to seek social assistance. To understand what affects introductory programming students' social help-seeking behavior, we conducted 32 semi-structured interviews and performed thematic analysis and qualitative coding on the ensuing transcripts. Our qualitative analysis revealed 18 significant factors that can fit into four broad categories: Internal Drivers, Social Constraints, Classroom Policy and Culture, and Practical Limitations. We found that some of these factors replicated prior work, while others were unique to the topic of computing and the specific environment of this study. The factors of communication style, type of question, and cheating policy were central when discussing code, which is an integral part of computing. Cheating policy, competition, explicit and implicit class standards, chain of order, and intimidation were all repeatedly reported factors when talking about the environment of the class, which had a constricting, competitive, and individual culture. Furthermore, we noticed that the decision to seek social help was two-fold; first, the decision to engage in social help-seeking and subsequently, the decision of who to ask for help. All but one of the factors, desire to complete alone, could be applied to the second step and eight were reported for the first step, indicating that students had multiple reasons for their choices. This suggests that understanding both steps is important in order to effectively lower the barriers to asking for help.

Honors Project in Mathematics, Statistics, and Computer Science
Advisor: Lauren Milne
Mathematics, Statistics, and Computer Science Department

Kathryn Shelton Lewis

Tale of Two Judiths: Queering the Book of Judith with the Works of Judith Butler

Biblical texts play a significant role in shaping expectations for behavior based on gender. In my queer reading of the Book of Judith, I argue that Judith's performance of gender is fluid and gender expansive. I use reader-response criticism to interpret Judith in conversation with the works of Judith Butler and Saba Mahmood on gender performativity, drag, and agency. This queer reading of Judith provides valuable representation of gender expansiveness in biblical

texts and explores queer possibilities in Judith as a way to challenge and subvert the larger issue of a patriarchal, heterosexist gender binary.

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

Lu Li

Minimal Cycle Representatives in Persistent Homology Using Linear Programming: An Empirical Study with User's Guide

Cycle representatives of persistent homology classes can be used to provide descriptions of topological features in data. However, the non-uniqueness of these representatives creates ambiguity and can lead to many different interpretations of the same set of classes. One approach to solving this problem is to optimize the choice of representative against some measure that is meaningful in the context of the data. In this work, we provide a study of the effectiveness and computational cost of several ℓ_1 -minimization optimization procedures for constructing homological cycle bases for persistent homology with rational coefficients in dimension one, including uniform-weighted and length-weighted edge-loss algorithms as well as uniform-weighted and area-weighted triangle-loss algorithms. We conduct these optimizations via standard linear programming methods, applying general-purpose solvers to optimize over column bases of simplicial boundary matrices.

Our key findings are: (i) optimization is effective in reducing the size of cycle representatives, though the extent of the reduction varies according to the dimension and distribution of the underlying data, (ii) the computational cost of optimizing a basis of cycle representatives exceeds the cost of computing such a basis, in most data sets we consider, (iii) the choice of linear solver may impact speed, frequency of obtaining integer solutions, and frequency of obtaining ℓ_0 optimal solutions, (iv) the computation time of solving an integer program is not significantly longer than the computation time of solving a linear program for most of the cycle representatives, using the Gurobi linear solver, (v) strikingly, whether requiring integer solutions or not, we almost always obtain a solution with the same cost and almost all solutions found have entries in $\{-1, 0, 1\}$ and therefore, are also solutions to a restricted ℓ_0 optimization problem, and (vi) we obtain qualitatively different results for generators found in Erdős-Rényi random clique complexes.

Honors Project in Mathematics, Statistics, and Computer Science
Advisor: Lori Ziegelmeier
Mathematics, Statistics, and Computer Science Department

Siguo Li

How Do Chinese Students Decide Which US College to Enroll?

Chinese students attending US colleges have been increasing rapidly in the past decade. Typically with full tuition payability, Chinese students contribute significantly to college financial models; hence recruiting Chinese students has become strategically important for many American colleges. Though Chinese students' enrollment decision is believed to be different from that of domestic students, quantitatively driven systematic research on Chinese students' decision process still lacks in the literature. This paper examines the impact of different factors on Chinese students' enrollment decisions with rigorous empirical methods and extensive data. This paper finds that in addition to factors domestic students typically consider, such as financial aid and academic quality, Chinese students particularly emphasize college ranking, reputation in China, and location in their decision process. Furthermore, we also find that the impact of the factors varies for students from different regions of China, which can be attributable to uneven economic development among various regions of the country.

Honors Project in Economics
Advisor: Liang Ding
Economics Department

Tianrui Liu

The Effects of Agriculture Productivity in Labor Migration: Evidence from Indonesia

Small farmers do not have control over the climatic, economic, and social environments in which they live. Labor migration thus becomes the most prevailing approach for small farm households in developing countries to improve their living standard. Asia, currently having the largest number of rural inhabitants, is expected to experience the most sizable decline (Uttam Khanal et al., 2015). Within Asia, Indonesia has the fastest urbanization growth. With urban growth averaging 4.4 percent annually, it is predicted that 68 percent of Indonesia's population will live in cities over the coming 10 years (Global Indonesian Voices, 2020). Previous research has demonstrated various causes of rural out-migration, including climate changes of agricultural productivity. This study investigates how agricultural productivity - one of the "push" factors for rural out-migration - and other household characteristics impact the decisions for rural out-migration, by using precipitation as a simulation of agriculture. The study uses panel data ranges from 1947 to 2014 and employs Ordinary Least Square, Probit Model, and Survival Analysis.

Honors Project in Economics
Advisor: Amy Damon
Economics Department

Diego Fabrizio Lopez Gutierrez

Automatic Leptonic Tensor Generation for Beyond the Standard Model (BSM) Theories

With the development of the Deep Underground Neutrino Experiment (DUNE) and Tokai-to-Hyper-Kamiokande (T2HK), we are entering the era of high-precision neutrino measurements. The colossal output of data from DUNE, plus the current data from several other neutrino experiments, will require a fast and efficient method of testing our BSM models in event generators. However, current methods for implementing a BSM theory in the event generators are prone to errors and time-consuming. We propose a novel program capable of automatically calculating the leptonic tensor for a given quantum field theory Lagrangian. This program is written in Python and utilizes the Universal FeynRules Output (UFO) format, the Lark package, and the Berends-Giele recursive relations to produce leptonic tensors that can be automatically implemented in several neutrino event generators, including those relevant for DUNE. For this project, we tested our algorithm with three SM processes: $e^-p^+ \rightarrow e^-p^+$, $\nu_e\bar{\nu}_\mu \rightarrow e^-\mu^+$ and $\nu_e p^+ \rightarrow \nu_e p^+$. For each process, we calculated the numerical and analytic $|\mathcal{M}|^2$ and σ that we plotted as functions of $\cos\theta$ and E_{CM} , respectively. The numerical results for $e^-p^+ \rightarrow e^-p^+$ and $\nu_e p^+ \rightarrow \nu_e p^+$ show good agreement with the analytic with a cross section numerical to analytic ratio of ~ 1 and ~ 0.9 , respectively. The process $\nu_e\bar{\nu}_\mu \rightarrow e^-\mu^+$ shows deviations from the analytic values with a numerical to analytic ratio of ~ 1.5 . We believe this deviation stems from inconsistencies in the helicity sum of our program and will investigate this effect further. For the future, we will be correcting these deviations and testing more complex SM processes as well as some BSM theories.

Honors Project in Physics and Astronomy

Advisor: Tonnis ter Veldhuis

Physics and Astronomy Department

Emily Rosa Lugthart

Classifying Topsoil Pollution Using Magnetic Susceptibility and Micro-XRF Analyses

Fine particulate pollution from vehicle exhaust and engine brake pad wear is a serious health and environmental concern, and understanding the extent and magnitude of pollution is an important aspect of potential mitigation efforts. Magnetic susceptibility has been used as a proxy to identify areas of high pollutant concentrations because fossil fuel combustion and many kinds of manufacturing generate nanometer-scale iron oxides and steel, in addition to heavy metals. This study examines the effectiveness of magnetic susceptibility as a proxy for roadside pollution by comparing magnetic susceptibility measurements to relative abundances of pollutants from measured transects along 14 different roads in Minnesota and Georgia. Relative concentrations of potential pollutants, including iron, zinc, lead, copper, nickel, and chromium,

were compared through net counts from μ XRF scans of full soil samples and separated clay fractions. Pollutants from vehicle exhausts are generally smaller than 5 μ m, as shown by the higher relative abundances in clay-fraction scans. High-traffic roads showed a strong, positive relationship between magnetic susceptibility, pollution concentration, and decreasing distance from the road, indicating that magnetic susceptibility is a good pollution proxy for roads with traffic of at least 10,000 vehicles per day. Along many low- and intermediate-traffic roads, lower pollution levels mean natural processes dominate magnetic susceptibility. In these scenarios, magnetic susceptibility is less reliable as a mechanism for characterizing the smaller variations in pollution levels.

Honors Project in Geology
Advisor: Anna Lindquist
Geology Department

Gretta Lucia Marston-Lari

Intersections of Environmental and Feminist Dramaturgy in the Work of BIWOC Playwrights of the 2000s

An exploration of intersectional feminism and eco dramaturgy in plays by Black and Indigenous women, this essay draws from Cherríe Moraga and Gloria Anzaldúa’s *This Bridge Called My Back*; Theresa J May’s *Earth Matters on Stage*; Carl Lavery’s *Performance and Ecology*; and Kimberlé Crenshaw’s seminal work on intersectionality. An analysis of *Splash hatch on the E going down* by Kia Corthron and *Burning Vision* by Marie Clements concludes that these playwrights: 1) represent nature as necessary for survival; 2) resist anthropocentrism by making the environment an active player; and 3) highlight “imperfection” by writing nature and women as flawed and vulnerable. Gretta Marston-Lari was in Peru in the fall 2019, when she conducted ethnographic research on the Tia Maria mining conflict and wrote the musical *Como la tierra* (Like the Earth). This Honors essay supported her critical revisions of her own dramatic work.

Honors Project in Theater and Dance
Advisor: Cláudia Tatinge Nascimento
Theater and Dance Department

Margaret Delia Moran

On My Students' Behalf: Teacher Strikes and Educators as Organizers

In the last decade, there has been a sharp uptick in teacher strikes across the country. Education strikes have roots in struggles for increased teacher pay and guaranteed pensions, but today these strikes also demand support for more modern needs, such as English-as-a-Second Language programs, special education, and mental health counselors, with slogans like “Fighting for the schools our students deserve.” As teachers take to the streets and state capitols with signs and lists of demands, the United States might be witnessing a shift in the role of teachers, as educators more forcefully lobby for their students in the face of austerity. Through interviews with educators who have gone on strike with their districts, I determine that educators are developing a political understanding of their role as teachers to improve the state of public education in the United States.

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

Tess Adair Eastman Mueller

How Hurt Fades

“How Hurt Fades” is a compilation of prose, poetry, and journal entries exploring a year and a half undergoing treatment for leukemia. The title of the piece refers to the healing process of writing this collection and the way that painful moments have faded into memories, while the moments of joy that I have experienced this year have blossomed and grown to form something beautiful. This collection explores the ways in which we form community and understand the self while going through intense medical experiences. Themes such as family, privacy, nature, and fertility tie together the individual pieces which both stand alone and build something bigger within the compilation. It conveys my deeply personal reality of cancer care and the universals of being human: the way we face loss, pain, and fear while also experiencing profound love and joy.

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

Finn Grace Odum

COVID Conspiracy Narratives: Dissecting the Origins of Misinformation in Digital Space

This thesis investigates how digital spaces allow for the circulation of COVID-19 misinformation. Through a discourse analysis of conspiracy narrative news coverage, I study the development of three COVID-19 conspiracies. I aim to understand how these discourses took advantage of digital social spaces to contradict reputable health authorities. The analysis indicates that COVID narratives are built on reproduced conspiracy motifs, xenophobia, and medical populist rhetoric. They use victimization plots to establish their knowledge claims as credible. The conclusions drawn from this research indicate that mainstream knowledge producers need to change their methods of disputing conspiracy knowledge claims.

Honors Project in Geography
Advisor: Eric Carter
Geography Department

Brooke Robyn Offenhauser

Can a Self-Compassion Writing Intervention Impact Feelings of Loneliness?

Loneliness is an increasingly widespread concern for many individuals, especially college students and young adults, and has been exacerbated by the COVID-19 pandemic. Loneliness can negatively impact health and well-being; however, many interventions are not successful in reducing loneliness. One possible intervention may be a resilience practice. Namely, self-compassion may reduce feelings of loneliness because it provides a way to connect with oneself and support well-being. This study aimed to examine the impact of a self-compassion intervention on feelings of loneliness and well-being in college students. It utilized a self-compassion writing intervention compared to a control self-affirmation writing intervention and examined both state or momentary feelings, as well as general or long-term feelings. The interventions did not affect general loneliness, but participants in both conditions experienced an increase in general well-being. Further, both conditions experienced decreased state loneliness, increased state self-compassion, and increased state well-being. The self-compassion intervention had a distinct impact on state well-being. These results support past research that long-term loneliness is difficult to alter. They also provide a new way to impact short-term feelings of loneliness in a cost- and time-effective manner.

Honors Project in Psychology
Advisor: Jaine Strauss
Psychology Department

Diana Paz García

Reframing the Security Paradigm and Uprooting Corruption: Policies to Mitigate the Mexican Large-Scale Violence Phenomenon

Since 2006 Mexico has been marked by brutality and the State’s inability to reduce it. This paper expands beyond the “War on Drugs” narrative to more accurately depict the situation as a large-scale violence phenomenon. After analyzing the current government's plan to combat the security crisis, it proposes an alternative set of policies to mitigate the violence phenomenon that prioritizes harm reduction, transitions out of the militarized strategy, empowers local police forces, and ensures accountability. It also pushes for the creation of an International Commission Against Impunity to strengthen law enforcement institutions and transform the conditions that make violence viable.

Honors Project in Political Science
Advisor: Wendy Weber
Political Science Department

Liam B. Purkey

Gentrification and Local Employment Outcomes: Evidence from New York City

In this paper, I propose two methodological innovations to the gentrification literature. I first propose a data-driven procedure for defining gentrification. I then propose the Synthetic Difference in Differences Estimator as a way to identify the economic effects of gentrification without quasi-experimental variation in the incidence of gentrification. I use these methodological innovations to study the employment effects of gentrification in New York City from 2010 to 2018. I find that gentrification increases the number of neighborhood jobs in Accommodation and Food Services while reducing the number of neighborhood mid-wage and service jobs that are held by residents of those neighborhoods.

Honors Project in Economics
Advisor: Sarah West
Economics Department

Anisha Burns RajBhandary

Hmong in the Twin Cities: Diaspora Experiences and Personal Identities

Utilizing first person interviews, survey data, and a literature review, this thesis explores Hmong diaspora experiences and personal identities, analyzing how Hmong in the Twin Cities reconcile the stereotypes set for Asian “model minorities” and construct their own unique identities. Through adopting an Asian diaspora framework, this thesis examines how Hmong Americans in the Twin Cities area create personal identities through various connections to the history and memory of war, the refugee experiences of moving across spaces, the localized experience of urban lived experiences, and community networks and relations.

Honors Project in Geography
Advisor: I-Chun Catherine Chang
Geography Department

Manik R. Reddy

Computational Study of Oxidation Products Derived from 4-hydroxy Isoprene (4-ISOPO) Radicals

Isoprene, an abundant biogenic hydrocarbon, is readily oxidized by the hydroxyl radical, significantly impacting atmospheric chemistry and the global radiation budget. In high isoprene emission regions, intramolecular hydrogen shifts within a subset of isoprene 4-hydroxy peroxy (4-ISOPOO) intermediates dictate subsequent oxidation chemistry. However, the corresponding rate coefficients and functionalized product yields remain uncertain. This study attempts to address these limitations by conducting reaction simulations using computed ω B97X-D/def2-TZVP energies for pathways that oxidize isoprene into carbonyl species downstream of 4-ISOPOO. RRKM master equation simulations at low temperatures (200-310 K) yielded a pressure-independent pseudo steady-state cis: trans ratio of 0.81:0.19 for the allyl precursor of 4-ISOPOO. Additionally, Transition State Theory calculations generated rate coefficients of 4.6 s^{-1} for the 1,6 H-shift and $6.3 \times 10^{-4} \text{ s}^{-1}$ for the 1,5 H-shift in 4-ISOPOO at 298.15 K.

Honors Project in Chemistry
Advisor: Keith Kuwata
Chemistry Department

Kayla Elizabeth Schang

Geomorphology and Crater Identification for the Azacca Crater Region on Ceres

Our understanding of the early solar system development is still incomplete, but studying objects in the main asteroid belt can help fill in the gaps. Several missions have studied objects from the main asteroid belt with this goal in mind. One particularly interesting object is the dwarf planet Ceres, which was visited in 2015 by the Dawn mission. Prior to this mission, Ceres was thought to be a typical asteroid, but the mission revealed Ceres to be a complex, water-rich body with evidence of extensive subsurface activities. Many features were found across Ceres, including bright spots which have high albedo and fracturing in and around large craters. One example is Azacca crater, which contains each of these features and has extremely high-resolution data available, but has not yet been extensively studied. For these reasons, as well as the evidence of subsurface activities, we chose to focus on the Azacca region for this project.

We have completed crater counts down to 800+ m diameters for the Azacca region, as well as high resolution counts down to 150+ m within the crater walls. These crater maps reveal that the Azacca region is unevenly cratered. We then performed statistical analysis on the crater size distributions to provide an initial understanding of the crater densities and were able to confirm the previously-marked types of terrain with this information. We also inspected each of the following features in the Azacca region—the central peak, Azacca’s floor, the bright spots, the linear features, the pit chains, and the mass wasting features where material has previously collapsed along Azacca’s wall. With this information, we now have a better understanding of how these processes and features may overlap with each other, rather than focusing on the features individually. Our in-depth analysis of the Azacca region helps us understand the subsurface and surface processes across Ceres.

Honors Project in Physics and Astronomy

Advisors: Anna Williams

Physics and Astronomy Department

Simone Marchi

Southwest Research Institute, Boulder Office

Jane Frear Servin

The Hidden Safety Net: Wild and Semi-Wild Plant Consumption and Nutrition Among Women Farmers in Southwestern Burkina Faso

In Burkina Faso, development initiatives focus on increasing agricultural yield to alleviate hunger. However, this strategy does not account for food access, gender, and household dynamics. This research investigates the use of wild plants for nutrition among women farmers and their households in Southwestern Burkina Faso. I examine the connections between wild plant consumption, wealth, dietary diversity, and seasonality by exploring three questions.

Ultimately, I find that wild foods are important for dietary diversity, especially for poor households. I argue that governments and commercialization projects should prioritize wild foods in rural diets to retain nutritional security.

Honors Project in Geography
Advisor: William Moseley
Geography Department

Joshua Dinh Stephenson

Fire History: Sedimentary Charcoal Record Spanning 2000+ Years from Fishercap Lake, Glacier National Park, Montana, USA

Charcoal produced from wildfires can be transported across landscapes and deposited in lake sediments. By studying the material abundance of charcoal particles within lake cores, we can create a high-resolution stratigraphic charcoal record and interpret how fire regimes change over time. A lake sediment core was collected from Fishercap Lake in Glacier National Park, Montana to better understand fire history in a pristine alpine environment with well-documented historical fires. The 39.5 cm long core was sampled to determine charcoal concentration at 1-cm intervals, with radiocarbon ages showing the core spans the last ~2300 years. Charcoal concentration increases towards the present, with the highest abundance in the past 500 years. This coincides with late Holocene climate variability, and may reflect changing environmental conditions, fuel source, increasing length of the summer fire season, and modern fire management strategies. This work may then help to establish anthropogenic relationships with wildfires.

Honors Project in Geology
Advisor: Kelly MacGregor
Geology Department

Bruno Stojčić

Warum sogn´s zu dir Tschusch?: Die Migration von Jugoslawien nach Österreich English Translation: The Migration from Yugoslavia to Austria

The migration from (ex-)Yugoslavia to Austria is often framed as two clear-cut phases in historical literature. The first phase is the phase of the *Arbeitsmigration* that happened in the late 1960s and early 1970s, while the second phase was the migration due to the war of the breakup

of Yugoslavia, which happened during the 1990s. This historical narrative fails to take into account the migration that happened before the 1960s and the migration that continues until today, after the breakup of Yugoslavia. This paper proposes that the migration from the ex-Yugoslav territory should be looked at as a continuum since that offers a much more comprehensive view of this historical phenomenon, which still hasn't ended. Additionally, it explores the experience of different migrant groups that don't fit the current historical narrative. Those experiences have largely been shaped by different discourses about migration that have emerged throughout the years in Austria, and by different terms used for migrants from the Yugoslav territory. The paper examines articles, poems, film, and art as representations of different discourses about migrants in Austria. The paper also analyses the films of Goran Rebić, a Serbian-Austrian director to explore how film as an art form presents the (ex)-Yugoslav communities in Austria. Additionally, the paper looks into exhibit catalog *Schere, Topf, Papier*, and proposes that although efforts of musealisation of migration history can offer a more comprehensive view of the historical period, it risks generalizing personal experiences into structural stories.

Honors Project in German & Russian Studies
Advisor: Rachael Huener
German and Russian Studies Department

Aidan Toner-Rodgers

Collective Bargaining and Police Use of Force: Evidence from the 20th Century

This paper studies the effect of collective bargaining rights on police use of force, exploiting state-level variation in the timing and scope of public sector collective bargaining legislation between 1960 and 1995. A difference-in-differences approach indicates that the extension of collective bargaining rights to law enforcement triggered a sharp increase in police killings, with point estimates ranging from 19-26% and growing with time from treatment. Furthermore, bargaining rights altered the racial composition of police killings, increasing the probability that an officer-involved homicide was of a black civilian by 6.2 percentage points (17%). Parsing the heterogeneity of these effects across various types of bargaining provisions, I show that while the right to unionize alone had little effect on use of force, laws mandating union approval of police contracts had a substantial impact. A variety of alternative specifications, estimation strategies, and placebo tests confirm the main results.

Honors Project in Economics
Advisor: Sarah West
Economics Department

Evan Unruh-Friesen

The Western Baja Terrane: Detrital Zircon Geochronology and Evidence for Mesozoic Plateau Subduction along the Western Margin of North America

In the late-Mesozoic, shallowing of the subducting Farallon plate triggered coeval crustal uplift and influx of sediment to the forearc basin and trench. Trench assemblages of the Western Baja terrane (WBt) crop out on several islands west of the Baja California Peninsula: Isla Cedros, Islas San Benitos, and Isla Santa Margarita. I present new detrital zircon geochronologic data for twelve samples (1109 grains) collected across outcrops of the WBt. U-Pb age results produce primary populations of ca. 100 Ma and 150-170 Ma, with distinct satellite peaks of 1.2, 1.5, and 1.7 Ga. I calculate maximum depositional ages of St-1, 94.2 ± 0.56 Ma; St-2, 85.7 ± 0.70 Ma; St-3, 96.8 ± 0.87 Ma; St-4, 95.0 ± 0.24 Ma. This work further clarifies the timing of accretion and highlights patterns between lithology, metamorphic grade, and current spatial position. Additionally, I attribute the shift to accretion with slab flattening associated with subduction of a conjugate, the Shatsky Rise.

Honors Project in Geology
Advisor: Alan Chapman
Geology Department

Ashley Vargas

Emmett Till and the Fight for Justice in Civil Rights Era Cold Cases

After devoting her life to seeking justice in her son Emmett Till's case, Ms. Till-Mobley never received justice. Along with Till's case, many Civil Rights Era cold cases continue to be unsolved because of America's disregard for the death of Black people. As an attempt to repair this legacy, the *Emmett Till Unsolved Civil Rights Crime Act* was signed into law. This legislation was intended to bring long-awaited justice to affected families. Through interviews with key experts, I conclude that Congress must introduce other progressive legislation that will have a greater and more beneficial impact for Black Americans.

Honors Project in Political Science
Advisor: Julie Dolan
Political Science Department

Hannah R. Whipple

The Effect of Racial Covenants on Modern Day Foreclosures: Evidence from Hennepin County

Between 2006 and 2015, approximately 16.2 million homes entered foreclosure, directly affecting nearly one in six American households (Hall et al., 2015). Yet, the consequences of foreclosure were not distributed evenly amongst all Americans. The foreclosure rate for Black Americans was 11%, compared to 6% for white people during the Great Recession (Hwang et al., 2015). Previous studies point to residential segregation as a driver of the disproportionate consequences of the crisis borne by minority communities. In Hennepin County, racial covenants were the first mechanized form of residential segregation. Written into property deeds, racial covenants prevented anyone who was not white from residing in or owning the home. By exploiting the exogenous shock of the 1948 Supreme Court Ruling deeming racial covenants unenforceable, I employ a fuzzy regression discontinuity model to show that covenants impacted foreclosure outcomes during the financial crisis in the early 2000s. I find evidence that covenanted homes were 15% less likely to foreclose during the Great Recession.

Honors Project in Economics
Advisor: Amy Damon
Economics Department

Maya Oliver Wills

Captivity Converges the Microbiomes of Diverse Primate Species

By analyzing fecal samples from a diverse set of captive non-human primates (NHPs), we investigated the influence of captivity on the NHP gut microbiome. All samples were processed using two common pipelines. Both pipelines returned statistically similar results, indicating that analysis method is unlikely to significantly bias results. While host species was the strongest driver of microbial composition in captive NHPs, it was supplanted by captivity status after the inclusion of human and wild NHP samples. Several environmental factors specific to captivity, including antibiotic usage and relocation, were linked to significant changes in gut microbiome composition.

Honors Project in Biology
Advisor: Robin Shields-Cutler
Biology Department

Kaichong Zhang

Demand Shock along the Supply Chain: The Bullwhip Effect of Covid-19 in Chinese Exports

This study investigates the bullwhip effect of Covid-19 on global supply chains from the Chinese perspective. The bullwhip effect refers to the amplification of demand shock along the supply chain, and my baseline estimates show that a 1% increase in foreign new cases (a proxy for foreign demand shock) reduces exports of downstream products and that of upstream industries by 2.1% and 4.5% respectively. The estimates also suggest that whether industries are concentrated or not generates ambiguous effects on exports that vary from different fixed effect models. In addition, a heterogeneity analysis suggests that the bullwhip effect is stronger in regional supply chains among geographically proximate countries and countries that are closely connected in terms of the trade volume. Furthermore, a dynamic analysis shows that the outbreak of Covid-19 in foreign countries causes a lagged import substitution towards Chinese products and reverses the initially negative demand shock. Unlike the initial adverse effect, I find that the lagged import substitution does not amplify along the supply chain, but mostly affects downstream industries.

Honors Project in Economics
Advisor: Felix Friedt
Economics Department

Yanyan Rena Zhang

National Treasures, National Stories: Constructing Multimedia Narratives of Cultural and National Identity in a Novel Chinese Edutainment Program

This honors project investigates a particular confluence of cultural nationalism, museum narrative and media spectacle in contemporary China. It focuses on *National Treasure*, a 2017 television program produced by China Central Television (CCTV) which aims to convey a resonant narrative about “Chinese national essence” to its domestic audience through the aestheticized presentation of certain historical artifacts on a televised multimedia stage. By analyzing the bodies, frameworks, historical memories, and cultural values brought together in the show’s theatrical matrix, this project aims to elucidate how the current Chinese state is attempting to construct a definitive mythology of Chinese national selfhood against a backdrop of cultural identity crisis, globalization, and rapid modernization in 21st century China. It will enhance not only the understanding of what goes into Chinese conceptualizations of power, history, and legitimacy, but also the way in which these ideas are being transferred from museum frameworks to new forms of media and narrative consumption.

Honors Project in History
Advisor: Yue-him Tam
History Department

PRIZES & AWARDS

The prizes and awards listed below are being given to graduating seniors of the Class of 2021.

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.

Adele Rose Welch

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.

Sophia Aimé

ANTHROPOLOGY

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

Lena Kristina Heino

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.

Margaret Mae Straw

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.

*Gabriel Romain Berman
Isabella Souza Molano*

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.

Nora Lulu Stewart

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:

Felipe Alejandro Fernández Nuñez

Joan Mondale Ceramics Award in Studio Art:

Camilla Anna Severi

Distinguished Merit Award in Studio Art:

Zarra Thalia 'TM' Marlowe

Merit Awards in Studio Art:

Malini Basu

Long Hoang Nguyen

Mai Xor Vang

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.

Ciara Hughes

Katie Lin-Guo-Lan Sowerby

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.

Daphne Iskos

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.

Chiagoziem Anigbogu

Kayla Marie Togneri

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

Phoebe Ann Fu
Elizabeth Hrycyna
Yoonjin Shu

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.

Carla Granados
Aurora Rose McCollum

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

Erik M. Anderson
Hannah Elizabeth Gilbert
Samuel S. Hochberger
Duane Nguyen

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.

Elyse Frances Blank
Madeline An Prentiss
Maya Oliver Wills
Hayley Kirkpatrick Zacheis

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.

Zachary Taylor Philip Fried

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.

Manik R. Reddy

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.

Xiomara Alexa Lozano Torres
Olive Tambou Nzoutchoum

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.

Brooke Katelyn Hoppe

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.

Conor Hogan Broderick

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.

Manik R. Reddy

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.

Adam Benjamin Tuma

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.

Madeline Emily Braun
Hannah Elizabeth Gilbert
Brooke Katelyn Hoppe

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.

*Madeline Emily Braun
Conor Hogan Broderick
Zachary Taylor Philip Fried
Ethan Brian Greene
Brooke Katelyn Hoppe
Chuan Ping
Manik R. Reddy
Mphatso Simbao
Adam Benjamin Tuma*

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.

*Sabine Marie Peterka
Varee Saetang
Victoria Vargas-Castro*

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.

Traci Badu

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.

Amy Kirsten Vandervelde

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.

Zhiyuan Wang

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.

Amy Kirsten Vandervelde

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.

*Aidan Toner-Rodgers
Hannah R. Whipple*

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.

*Molly S. Hurley
Zain Ijaz
Floyd Krom
Jessie Lu
Grace E. McKenney
Rodrigo Ortiz
Andrew Justin Polk
Max Allan Starks
Jackson Tak
Young Hyun Yoo*

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.

Franklin Gunnuf Marquette

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.

*Georgia Zohreh Kazemi
Kennedy Ann Kechely*

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.

Liam B. Purkey

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.

*David Barrette
Federico Chung
Siguo Li
Tianrui Liu
Ruojin Ma
Kaichong Zhang*

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.

Ashley Kate Allen

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.

Ashley Kate Allen
David Barrette
Temalangeneni Gugu Precious Dlamini
Abigail Lorene Hinds
Ekaterina Ingeborg Hofrenning
Molly S. Hurley
Zain Ijaz
Georgia Zohreh Kazemi
Kennedy Ann Kechely
Floyd Krom
Tianrui Liu
Jessie Lu
David Wilcox Madairy
Franklin Gunnuf Marquette
Grace E. McKenney
Theo Nsereko
Son K. Phan
Andrew Justin Polk
Liam B. Purkey
Max Allan Starks
Christopher J. Stockwell
Caroline Tevnan
Aidan Toner-Rodgers
Hannah R. Whipple
Michael Donal White
Young Hyun Yoo
Huichang Zhao

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.

Sahra M. Abdirahman
Joselyn Lissette Angeles Figueroa
Adele Rose Welch

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.

*Nancy Gomez
Cassie M. Rogers
Gianella Rojas
Swopnil Shrestha*

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.

*Lily Jane Alexandroff
Victoria Vargas-Castro*

ENGLISH

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.

Amy Kirsten Vandervelde

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:
*Zoelle E. Collins
Eric Pui-Jung Fong
Albert Wayee Lee
Rebecca Lewis*

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.

*Conor Hogan Broderick
Gabriel J. Fisch*

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

Creative Prose:

Eric Pui-Jung Fong
Albert Wayee Lee
Rebecca Lewis
Zarra Thalia 'TM' Marlowe

Literary Analysis:

Asher Abraham Goldberg de Forest
Amy Kirsten Vandervelde
Katherine Rose Woodhouse

Poetry:

Conor Hogan Broderick

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.

Betsy Frances Barthelemy
Conor Hogan Broderick
Malcolm Emerson Cooke
Asher Abraham Goldberg de Forest
Eric Pui-Jung Fong
Ruojin Ma
Robert Shepetin
Kelsey Elizabeth Stender-Moore
Nora Lulu Stewart
Amber Raye Stuedell
William S. Ummel
Amy Kirsten Vandervelde
Lindsay Weber

ENVIRONMENTAL STUDIES

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

Sasha Amadi Lewis-Norelle
Kori Suzuki

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

Sabine Marie Peterka

FRENCH AND FRANCOPHONE STUDIES

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.

*Samuel Evan Hickman
Jane Frear Servin*

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.

*Kai Davis**

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.

*Margaret Jaenicke
Finn Grace Odum
Anisha Burns RajBhandary
Jane Frear Servin
James Stuart Smith*

MACALESTER GEOGRAPHY AWARD FOR EXCELLENCE OF SCHOLARSHIP—The Award for Excellence of Scholarship is awarded annually to an outstanding senior majoring in geography. Criteria used in identifying nominees include: academic performance, GTU membership and participation, departmental service, dedication, and enthusiasm.

Anisha Burns RajBhandary

**Awarded posthumously*

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.

*Konrad J. Bostrom
Janett Casillas
Charlee S. Gorham
Aubrey Avonelle Hagen
Alison Marie Bautista
Rachel McCaffery
Finn Grace Odum
Anisha Burns RajBhandary
Jane Frear Servin
James Stuart Smith*

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.

Emily Rosa Lugthart

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.

Evan Unruh-Friesen

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.

*Chloe Shea McWhirt
Bruno Stojčić*

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

Jacob C. Geers

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.

*Jacob C. Geers
Chloe Shea McWhirt
Bruno Stojčić*

HISTORY

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

Michelle Sarah Armstrong Spielberg

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.

Emma Harrison

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.

Daria Chamness

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.

Claire Elizabeth Menard

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.

Cordelia McDougall Jones

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.

Jennings Griffith Axel Mergenthal
Yanyan Rena Zhang

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.

Michelle Sarah Armstrong-Spielberg
Daria Chamness
Emma Harrison
Claire Elizabeth Menard
Jennings Griffith Axel Mergenthal
Callan Marie Kugler O'Connor
Robert Shepetin
Yanyan Rena Zhang

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.

Willow Rousseau Fortunoff
Emma Claire Verges

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.

Teresa Ines Padrón

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.

Gretta Lucia Marston-Lari

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.

Hannah Staats

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.

Lillian Virginia Irvin

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.

Anael Kuperwajs Cohen

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.

Jennifer Erin DeJong

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.

Ellen Sandra Graham

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.

Zuofu Huang
Thy Tue 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:
Logan Blue Caraco

In Mathematics:
Yilin Chen

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.

Hannah Sofia Chonkan-Urow

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.

Lu Li

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.

*Lidija Anna Namike
Shania Russell*

MULTICULTURAL AWARD

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

*Wanda Barradas
Gabi Estrada*

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.

Elijah Ying Levy

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

Kayla Elizabeth Schang

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.

Elinor Danae Jones

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.

*Traci Badu
Katherine Rose Podoll
Layan M. Safi
Madeline West*

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.

Kai Michelle Bosley

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.

*Justine Elizabeth Barraza
Kai Michelle Bosley
Laura Botero Vallejo
Abrielle Grace Dillon
Paige Catherine Fochtman
Samuel S. Hochberger
George G. Kidess
Camille Curran King
Brooke Robyn Offenhauser
Katherine Rose Podoll
Karina Elizabeth Polacek
Julia Michaela Record
Layan M. Safi
Jack Clark Sahargun
Natali Sorajja
Katie Lin-Guo-Lan Sowerby
Kayla Marie Togneri
Madeline West*

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.

Katia Nicole Hom Sievert

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.

*Ling Ma
Gage Ryder*

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.

Courteney Arielle Sedillo

PHYSICS AND ASTRONOMY

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

Diego Fabrizio Lopez Gutierrez

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.

Siddhant Singh

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

Brennan Arnold

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.

Nicholas Velikonja

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.

Kayla Elizabeth Schang

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.

Willow Rousseau Fortunoff

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.

Amanda Maria Ortiz

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.

Scotland Ross Kraker

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.

*Chihiro Cynthia Aita
Emma Meiyuan Baker
Elizabeth Marie Burton
Sierra M. Campbell
Yuqing Fang
Willow Rousseau Fortunoff
Keegan Michael Jamal Greaney
Scotland Ross Kraker
Margaret Delia Moran
Diana Paz García
Kelsey D. Rodriguez
Robert Shepetin
Ashley Vargas
Lindsey Weber*

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.

*Brooke Robyn Offenhauser
Vanisa Senesathith*

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.

Nancy Gomez

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.

*Abrielle Grace Dillon
Stephanie Konadu-Acheampong*

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.

*Nishta R. Amin
Emelie G. Beattie
Ella Rosali Becker
Lydia Joy Diebel
Abrielle Grace Dillon
Allison Eleanor Dwinnell
Nancy Gomez
Maria Cecilia Guzman
Emma Katherine Janiszewski
Stephanie Konadu-Acheampong
Zhangchi Liu
Isabel Sloan Meyer-Mueller
Anh Thuỳ Nguyễn
Rebecca Kerns
Carina Marie Ramorino
Vanisa Senesathith
Amber Raye Stuedell*

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.

*Kathryn Shelton Lewis
Katherine Nault Massell*

RUSSIAN STUDIES

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

Rebecca Kerns

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.

*Joselyn Lissette Angeles Figueroa
Isabel Catherine Conde
Victoria-Jo Mangaoang Gapuz*

SPANISH AND PORTUGUESE

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

Kiera Collins

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.

Jacquelyn Colleen James

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:
James Matthew Bellitto

NATIVE/HERITAGE SPEAKERS OF SPANISH AWARD—Awarded by the Department of Spanish and Portuguese to a native Spanish speaker who has taken a minimum of two literature classes, to recognize outstanding work and encourage continued literature study.

Osmar Del Río

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.

James Matthew Bellitto
Kiera Collins
Rositsa P. Ivanova
Jacquelyn Colleen James
Lilian Yi Jenssen
Anya Rachel Lindell Paulson
Jane Anne Whitley

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.

Vivian B. Bauer
Lillian Yi Jenssen
Amanda Maria Ortiz

THEATER AND DANCE

RUTH EASTON LEADERSHIP AWARD— Given to a graduating senior who has excelled, through coursework and applied stage work, as a scholar and artist; invested time and energy into guiding other students; contributed to productions; and acted as a role model for commitment to theater.

Asher Abraham Goldberg de Forest

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.

Adar May Kamholtz-Roberts

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.

Ashley Kate Allen
Chiagoziem Anigbogu
Brennan Arnold
Ella Rosali Becker
Avik Scott Bosshardt
Conor Hogan Broderick
Federico Chung
Jennifer Erin DeJong
Zachary Taylor Philip Fried
Hai-Chau Giang
Hannah Elizabeth Gilbert
Nancy Gomez
Ellen Sandra Graham
Ethan Brian Greene
Ana Gvozdić
Shannon Ione Johnson Hahn
Bonnie Rae Hoekstra
Brooke Katelyn Hoppe
Elizabeth Hrycyna
Zuofu Huang
Jacquelyn Colleen James
Chloe Madeleine Brauer Kahn
Georgia Zohreh Kazemi
Kennedy Ann Kechely
Jillian Kristine Kirk
Anael Kuperwajs Cohen

Siguo Li
Julia Loewenson
Franklin Gunnuf Marquette
Grace E. McKenney
Margaret Delia Moran
Anh Thuỳ Nguyễn
Thy Tue Nguyen
Sun Gyu Park
Katherine Rose Podoll
Karina Elizabeth Polacek
Liam B. Purkey
Anisha Burns RajBhandary
Manik R. Reddy
Layan M. Safi
Kayla Elizabeth Schang
Vanisa Senesathith
Siddhant Singh
Nora Lulu Stewart
Jamie Alexandra Thompson
Adam Benjamin Tuma
Evan Unruh-Friesen
Emma Claire Verges
Madeline West
Hannah R. Whipple
Maya Oliver Wills
Kaichong Zhang

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 English Teaching Assistantship to Taiwan:
Anisha Burns RajBhandary

Fulbright Research Grant to Peru:
Kayla Marie Togneri

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.

Vivian B. Bauer