

# HONORS CANDIDATES

## 2015-2016

### **AARON ACKBARALI**

*Honors in Mathematics*

*Adviser: Associate Professor of Mathematics Jonathan Forde*

*“The Atiyah-Singer Index Theorem and Fractal Geometry”*

Algebraic topology is the study of shapes by looking at their algebraic properties. Analytic number theory is the study of numbers by using calculus-like tools. The Atiyah-Singer index theorem unites topology and analysis in a fundamental way; however, some exotic shapes are left out of this unification, namely fractals. The goal of this project is to produce a thoughtful exposition on the K-theoretic proof of the Atiyah-Singer index theorem and then begin to develop the necessary machinery to extend this theorem to fractals. This problem of extension is particularly challenging for fractals since measure theory is used to characterize them, but measures do not have the same natural properties of differential forms, the characterizing tool of objects captured by the Atiyah-Singer theorem. This is ongoing research.

### **EMMA ANDERSON**

*Honors in Anthropology*

*Adviser: Professor of Anthropology and Sociology Jeffrey Anderson*

*“Autoimmune Paleo Protocol: How the Unhealable Heal”*

According to the American Autoimmune Related Diseases Association, it is estimated that 50 million Americans are suffering with autoimmune diseases. Furthermore, less than one in five Americans can name an autoimmune disease; therefore, what is an autoimmune disease? What is it like to live with an autoimmune disease? How does an online/social media community shape that experience? This project focuses on the global Autoimmune Paleo (AIP) online/social media community. This community consists of individuals who have been diagnosed with autoimmune diseases who follow a specific anti-inflammatory diet along with clinical (and many times functional) medical treatment. This protocol reaches beyond just a diet as it also includes lifestyle practices that members follow.

I find it fascinating that people can connect and heal not only through the biological process of healing through the protocol and lifestyle choices, but also through an online interactive space. Through interacting with the community, analyzing surveys, and conducting interviews with members, I have written an ethnography of the AIP community. Members' paths to diagnosis, often immersed in uncertainty, and on-going journeys with healing are explained. I answer questions such as what it is like to live with an autoimmune disease? how do people come to find the AIP community?, what the structure of the community looks like?, what makes an online space a “healing” community?, and how has a diagnosis (or lack thereof) affected members?.

I end with a reflection on unresolved issues. The number of Americans with autoimmune diseases is rising yet many members of the AIP community encountered struggles with our current health care system due to the ambiguous nature of the disease and also the cost of needed medical testing. I offer the conclusions of those who live with autoimmune conditions in order to highlight what is lacking in terms of the diagnosis and treatment of autoimmune disease.

## **NICOLETTE ANDRZEJCZYK**

*Honors in Biology*

*Adviser: Assistant Professor of Biology Susan Cushman*

"Histological effects of Endocrine Disruptors on Male Blacknose Dace (*Rhinichthys atratulus*) in the Seneca Lake, NY Watershed"

This honors project will focus on the potential effects of endocrine disruptors on blacknose dace (*Rhinichthys atratulus*) in the Seneca Lake watershed. Endocrine disruptors are compounds that prevent regular function of the endocrine system, resulting in elevated hormone levels and changes in the reproductive system. In fish, these compounds have shown to result in intersexuality, feminization, and reduction of gonad size. In certain cases, these alterations have shown to cause declines in fish population. Examples of these endocrine disruptors include estrogenic pharmaceuticals in wastewater treatment plant effluent, certain agricultural pesticides, certain industrial waste, and others. Most of these endocrine disruptors enter aquatic environments through surface runoff, or in the case of wastewater treatment plant effluent, from a point-source. Through this study, the level of feminization in the male fish due exposure to endocrine disruptors will be determined through histological analysis of the gonads. In order to capture the potential effects of land use on endocrine disruptor loading, three very different Seneca Lake tributaries have been chosen for collection of fish: Castle Creek (highly urban), Big Stream (highly agricultural), and Glen Eldridge (highly forested). Monitoring of these endocrine disruptors in the Seneca Lake watershed is important as these compounds have the potential to disrupt fish populations, leading to a domino effect of negative impacts throughout aquatic ecosystems. Identification of endocrine disruptors could also pose threats for human health, as exposure to these compounds has been linked to certain cancers, decreased fertility, and adverse effects on the reproductive, immune and nervous system in humans.

## **GENEVA CALDER**

*Honors in Public Policy*

*Adviser: Professor of Public Policy Craig Rimmerman*

"'Big, Bad, Western Pride' and its Place in Influencing LGBT Rights in Latvia"

On June 20<sup>th</sup>, 2015, Latvia made history as the first former-Soviet country to host a EuroPride parade. Though Pride is undoubtedly one of the most public expressions of LGBT respect and acceptance, it is not always directly reflective of the political situation going on internally in a state. Through this project, I bring in a comparative angle by evaluating some aspects of LGBT rights and history in the United States in contrast to the relatively new democracy of Latvia.

At the end of the project, I will develop realistic first steps and policy suggestions for Latvia based on its current situation. Through a queer theory critique on my own policy, I conclude that the future of LGBT movements in Latvia and worldwide has to have a more liberationist dynamic if true equality across lines of sexual difference is ever to be achieved.

## **KELLY CRAIG**

*Honors in English*

*Adviser: Prof. Kathryn Cowles/English*

"What Happens Here Stays Here: Sense of Place and Identity in Las Vegas Literature"

A recent advertisement campaign promoting tourism to Las Vegas features the slogan "Be yourself here, or anyone else." As a supplement to "what happens here stays here," this slogan reveals the startling lack of identity embodied in media about this city of illusion and façade. To understand the way that this identity-less perception is both promoted and problematized, I have turned to

literature set in Las Vegas to examine the experience of Las Vegas as a real place. Through exploring the literary history of Las Vegas, examining fact and truth in writing about place, identifying patterns in themes and craft, and writing my own short stories set in Las Vegas, I have determined that Las Vegas as a setting produces certain literary temptations, and the contradictions inherent in Las Vegas itself shape both the form and the content of literature set there. Examining literature set in Las Vegas leads to a deeper knowledge of the need for accuracy in fiction of place, the influences of literature on identity, and the dependency of identity on literature, both in Las Vegas and elsewhere.

## **ANNABEL F. CRYAN**

*Honors in International Relations*

*Adviser: Prof. Jason Rodriguez/Anthropology*

"Big Food, Big Problems: An Analysis of the Environmental Impacts of the U.S. Industrialized Food Industry and a Potential Local Solution"

My project questions the relationships that enable our options every time we enter the grocery store. I have two levels to my analysis: the local and the global. I am researching the barriers to entry for small local farmers into the marketplace. In examining these barriers, I have to question their existence and recognize who benefits from their continuation. My advocacy for increased access to local foods and streamlining the process for small farmers to enter the marketplace has to be questioned: Why do local farms matter? I argue that small local farms are better than the alternative food source: "Big Food". My project involves ethnographic research accumulated through interviews with local farmers and experts in small farming. Most broadly, my project examines what cheap, accessible, mechanized food means for the world's people and its ecosystem.

## **VIRGINIA DEWEES**

*Individual Honors in Educational Leadership*

*Adviser: Professor of Education Jim MaKinster*

"Fostering Social Justice in U.S. Independent Schools through Culturally Relevant, Transformational Leadership"

This project attempts to understand the ways and extent to which educational leaders in independent schools value social and cultural diversity by asking the research question: *how do educational leaders of independent schools in the U.S value and attain diversity in institutions that are historically racially and socially homogenous?*

This Honors project began with a review of the literature on the nature and history of independent schools, the value of diversity in education, the theory of cultural relevancy, and transformational leadership. Then, ethnographic fieldwork was conducted at five different independent schools throughout the Northeastern United States, interviewing Head of Schools, teachers, students, and administrators. Analyzing these interviews led to the development of a specific model schools can use to address issues of diversity and foster greater diversity among students, staff and faculty. Overall, this model advocates schools adopting a communal perspective towards fostering and respecting diversity in independent schools.

## **NOAH FEEMAN**

*Honors in Media and Society*

*Adviser: Assistant Professor of Media and Society Rebecca Burditt*

“MUSICAL INTERDIEGESIS: SOUNDSCAPE AND LEITMOTIF IN NARRATIVE VIDEO GAMES”

Video games have been redefining the way that music is used for the past fifty years, from electronic two-note tracks to fully symphonic soundtracks that are over three hours long. Each game uses sound differently, and some games have used music in such a way that it has begun to leave the medium and transcend to film and other sound/image hybrid works. With a focus on Nintendo's *The Legend of Zelda* and Square Enix's *Final Fantasy VII/Compilation*, this project attempts to delve into some of what it is that redefines music for its players in the mixed medium of video games.

## **ALEXANDER GATCH**

*Honors in Biology*

*Adviser: Associate Professor of Biology Meghan Brown*

“Age and Size as Predictors of Mercury Accumulation in Lake Trout from the Finger Lakes.”

My honors project will focus on mercury accumulation in lake trout on Seneca, Cayuga, and Canandaigua Lake. The lake trout will be analyzed for mercury concentrations and their length, weight and age will be associated with mercury loading. My hope is to complete this study and create a comprehensive guide for those who eat lake trout on what to look out for. The study will be a mixture of toxicology as well as fisheries biology and will take place over the next two semesters. Lake trout have already been captured by the NYDEC and by myself. These lake trout will be processed and analyzed at the Finger Lakes Institute and their otoliths (ear bones) will be sent to a private contractor to be aged. While there is a lack in scientific work done on lake trout in the Finger Lakes, I believe that the results from this project will open doors to future research.

## **KERI GEISER**

*Honors in Geoscience*

*Adviser: Associate Professor of Geoscience Tara Curtin*

“Reconstructing the Historic Trophic State of Four New York Finger Lakes using the Sediment Record and Water Quality Data”

Eutrophication is a pressing water quality issue in freshwater systems worldwide. I reconstructed the past trophic state of four of the New York Finger Lakes (Conesus, Honeoye, Canandaigua and Cayuga) using a variety of paleo-productivity indicators preserved in the historic sediment record and water quality data compiled from a literature review. The ages of the sediment core I collected from each lake were determined using  $^{210}\text{Pb}$  and  $^{137}\text{Cs}$  to infer the timing of changes in paleo-productivity of each lake. To infer changes in paleo-productivity I used % organic carbon, % nitrogen, atomic carbon/nitrogen ratios, and stable isotopic ratios of carbon and nitrogen of organic matter. In order to reconstruct changes in the watershed contributions to each lake, I measured the % terrigenous material and bulk magnetic susceptibility of the sediment because these parameters reflect erosion in the watershed. To verify this reconstructed information using the sediment record, I performed a literature review of existing water quality data for each lake (Secchi disk depth, chlorophyll-a, and total phosphorous). I used these data to calculate the Carlson Index to establish the past trophic state in all four lakes. I then compared stratigraphic shifts in the paleo-productivity proxies preserved in the sediment record with these published data to test the fidelity of the sediment record. Finally, using both datasets, I determined when these lakes underwent shifts in productivity and what may have caused them.

## **MICHELLE GOMEZ (COMPLETED FALL, 2015)**

*Honors in Physics*

*Adviser: Assistant Professor of Physics Leslie Hebb*

*“Starspot Crossing Transits in Long-Cadence Kepler Data: A Search for Correlations between Starspots and Stellar Properties”*

As visible manifestations of strong magnetic fields, starspots provide an opportunity for us to explore small-scale properties of magnetic fields. With the launch of NASA's Kepler satellite, we now have access to near-continuous high-precision photometry of thousands of transiting planet host stars that we can use to study starspots. We have written a program that uses long cadence photometry (Kepler's way of studying stars at ~30 min. intervals) of all transiting planet host stars to measure starspot variability caused as the planet transverses in front of starspots. We identified host stars whose light curves are strongly affected by in-transit starspots. We are using this sample to investigate correlations between the presence of starspots and global stellar parameters such as effective temperature and rotation period. In addition, we are using the known position of the planet to explore the latitude of the starspots on the transiting planet host stars.

## **JESSICA A. GRAVES**

*Honors in Latin American Studies*

*Adviser: Associate Professor of Anthropology and Sociology Brenda Maiale*

*“SALIR ADELANTE: A Study Of Peruvian Migration and the Immigrant Experience”*

My honors project explores Peruvian migration patterns from 1968 to 2000. I focus on external migration and the economic and political policies that affect the flow of migrants. I also use ethnographic studies, gathered from personal interviews and outside sources, in order to give life to the migration movement and observe how these experiences alter a migrant's perspective on Peruvian Identity. By identifying these major political movements and economic factors and overlaying them with ethnographic studies, I look for patterns and trends that can be extracted and used as an explanation for the motives of migrants. These motives I argue differ from the traditional push and pull factors that narrate migration patterns and can be considered the intangible factors that cause migrants to choose to leave their homes in the first place.

Understanding the motivation and the social constructs behind migration is crucial to the implementation of migration policy and theology. This is especially relevant to the Peruvian case as migration statistics have shown a steady rise in migrants over the latter half of the twentieth century. Current studies show that the 2000s represent a new wave in migration from Peru, whose major destination has historically been the United States. The demographic of the Peruvian migrant is unique to that of other Latin American countries thus it is important to view this case study as a unique perspective on the immigration experience. The demographic of the Peruvian migrant is unique to that of other Latin American countries thus it is important to view this case study as a unique perspective on the immigration experience.

## **OLIVIA HANNO**

*Honors in Psychology*

*Adviser: Assistant Professor of Psychology Brien Ashdown*

*“Culture's Role in Educational Goals: How Culture Dictates the Effectiveness of Sex Education in Rural Highland Guatemala”*

In Guatemala, adolescent pregnancy often prevents young girls from finishing their education, perpetuating a vicious cycle of extreme poverty within their families (Samandari & Speizer, 2010). This may be partially attributed to a lack of sex education resulting in low rates of contraceptive use. One study showed that sexually active adolescents in Guatemala with primary or secondary education were much more likely than those with no education to have used a modern

contraceptive method (Samandari & Speizer, 2010). Additionally, the high prevalence of sexual violence is troubling as it constitutes one of the world's highest teenage pregnancy rates (Forsell, 2015). In the case of sexual violence, inegalitarian gender norms and *machismo* (the belief that men are superior to women and that women should fulfill traditional gender roles) perpetuate the pattern, making it a norm in Guatemalan culture (Gibbons & Luna, 2015). The lack of sex education could contribute to this problem as well because the education system does not teach young girls about sexual rights. As a response, an NGO in rural highland Guatemala has implemented a sex education program in the schools located around Lake Atitlán. Students are in 5<sup>th</sup> primaria (5<sup>th</sup> grade), 6<sup>th</sup> primaria (6<sup>th</sup> grade), 1<sup>st</sup> básico (7<sup>th</sup> grade), 2<sup>nd</sup> básico (8<sup>th</sup> grade), and 3<sup>rd</sup> básico (9<sup>th</sup> grade). The program gave surveys to the students in the program to evaluate their sexual knowledge, attitudes about gender roles, and attitudes about sexual rights at four different time points: before the program had started, after one year of the program, at the start of the second year, and at the end of the second year. The present study investigates the effectiveness of this program by evaluating growth in sexual knowledge as well as the shift from less egalitarian to more egalitarian attitudes.

## **MACY HOWARTH**

*Honors in Geoscience*

*Adviser: Professor of Geoscience Neil Laird*

"Climatology of Wind Chill Temperatures Across North America"

The Honors project I am completing for 2015-2016 began during research conducted in summer 2014 here at HWS. During that summer, my partner and I created a 30-year climatology of extreme wind chill temperatures across continental North America. Wind chill temperature is also known as the "apparent temperature" and is the temperature the air feels like to skin when the wind blows. From this climatology, I was able to compare wind chill temperatures during the winter months of December, January, and February. In addition, I could examine spatial and temporal trends during the winter months from decade to decade. By examining trends in wind chill temperature, wind speed and temperature, we can observe changes in our winter weather that may be related to climate change. The findings show that extreme wind chill temperatures are warming and becoming less frequent, which indicates that extreme cold events are warming and becoming less frequent.

## **GARRETT JANSSEN**

*Honors in English*

*Adviser: Visiting Assistant Professor of English and Comparative Literature Vinita Prabhakar*

"A Line in the Sand"

Updated Description: A senior at Wakeburn High School, Dylan Colby relishes in his status quo of partying, surfing, and maintaining a casual relationship with his girlfriend Cat. Dylan is happy to maintain that lifestyle until college rolls around so he can escape his abusive mother. His new neighbor, Raine Stratton, is barely a blip on his radar—just another person to befriend. After a rumor about Dylan flies around school after his best friend's party, his stable social life becomes chaotic. And when the guidance counselor catches Dylan drunk in school, Dylan is given an ultimatum: commit to therapy sessions or face the wrath of his mother and ruin his chances of college admission. As Dylan tries to repair his social life, Raine is rebuilding her own, and the two neighbors learn to navigate the hazardous waters of their lives as they renegotiate their relationships with their parents and themselves.

My Honors Project is a novel, rooted in the bildungsroman or coming-of-age genre. Playing with the unrepresented popular crowd allows me to explore issues regarding the abuse of alcohol, the complexities to single-parenting, the (in)significance of sex in a hypersexualized culture, and the misperception of therapy. Also contained in the project is an unrelated short story about a father trying to tell his nine-year-old daughter that their mother is gone?

## **QUINCEY JOHNSON**

*Honors in Environmental Science*

*Adviser: Assistant Professor of Environmental Sciences Kristen Brubaker*

“Fine-scale aboveground carbon distribution of forests with varying lithology: A comparison across two watersheds”

My honors project compares the aboveground carbon storage between two mixed-deciduous forests in central Pennsylvania with different bedrock. Quantifying carbon pools in forests is becoming an important task in offsetting the effects of climate change. As global atmospheric carbon dioxide levels have exceeded 400 ppm due to anthropogenic activity, the ability of forests to sequester CO<sub>2</sub> from the atmosphere through photosynthesis is essential to mitigate the adverse effects of climate change and to inhibit the rise of global temperatures. The objectives of this project are to analyze and compare vegetation patterns across topographic positions and understand the influence of lithology on forest structure. Although many ecosystem services are not well understood and the benefits are not easily quantifiable, this study aims to estimate the amount of carbon offset by temperate deciduous forests to help lessen the harmful effects of increasing levels of atmospheric CO<sub>2</sub>. Understanding the fine-scale aboveground carbon distribution in these two watersheds will give rise to comprehending carbon storage on a broader scale and the various factors that contribute to the spatial distribution of terrestrial carbon pools.

## **AMELIA LITTLETON**

*Honors in English*

*Adviser: Assistant Professor of English and Comparative Literature Geoffrey Babbitt*

“you took a photo of me looking”

My current project focuses on poetry of place. My poems explore memory in depth, and the ways in which memory and place inform one another. While working with these themes in my collection, I also was interested in experimenting with a variety of poetic forms; my work ranges from lyrical and narrative, image-based and voice driven, playful and contemplative.

My focus in place-based poetry came from my time spent studying abroad in Mendoza, Argentina and other places in South America. Since I was abroad in the fall of 2014, the use of memory has been very informative to my project. Using my memory, I have been able to piece together places that were influential to personal relationships while abroad. The most important personal relationship is at the front and center of my collection and has allowed me to explore people, place, and memory.

Many poems in my current project could be categorized as love poems, but they stray from the traditional idea of idealized love poetry. My project, while attempting a range of styles, also aims to participate in the long-standing tradition of the love lyric. However, I strive to avoid the most common pitfalls of sentimentality and romanticization. I write a form of post-Confessionalist confessional poetry, expressing emotions without the cliché. My poems aim to be deeply felt, without seeming precious.

## **KATHRYN M. MENDEZ**

*Honors in Biology*

*Adviser: Associate Professor of Biology Meghan Brown*

“The Potential Use of Environmental DNA for Detection of *Hemimysis anomala*”

My honors project combined the fields of invasive ecology and genetics to study a recent Finger Lakes invader, *Hemimysis anomala*. *Hemimysis anomala*, commonly known as the bloody red shrimp, is crustacean from the order Mysidacea native to the Ponto-Caspian region. In recent years, its spread has been documented from the Ponto-Caspian region to the freshwater Great Lakes via ballast water

in trans-Atlantic shipping. From the Great Lakes, *H. anomala* spread to Oneida Lake, sections of the Erie Canal in New York State, and into Seneca Lake. As a nocturnal, invertebrate, aquatic species, detection of this species can pose a particular challenge to researchers. Traditional detection methods can only be conducted at night, and light levels, preferable habitat, and environmental conditions can impact accurate detection. Furthermore, traditional methods also involve extensive sorting through bycatch organisms and counting, both of which are time consuming and can lead to inaccurate representation of the populations being studied. My honors project sought to investigate a growing new detection technique, known as environmental DNA detection, which relies on detecting DNA from the environment rather than detecting the organisms. This technique would allow researchers to gather water samples and run in lab detection methods, rather than rely on nocturnal sampling methods. My project sought to investigate the genomic sequence of Seneca Lake *H. anomala* to understand any genetic variation among the populations in Seneca Lake. Using previously developed *H. anomala* specific primers for the mitochondrial COI gene, my research conducted full factorial in lab experiment to determine if *H. anomala* shed enough eDNA to be detectable via PCR amplification and gel electrophoresis before investigating in field experimentation with environmental DNA can begin.

## **COLLEEN MOORE**

*Honors in Music and International Relations*

*Adviser: Assistant Professor of Music Catherine Walker*

"Conflict Transformation and Music in the Israel/Palestine Conflict"

My project explores the question, "How can music be used to support peace processes in conflict transformation?" Music and social justice have historically been intertwined and this project uses the Israel-Palestine conflict as a case study to investigate the application of music in conflict transformation. The West-Eastern Divan Orchestra provides a model of this in the Israel-Palestine conflict. Upon investigating, there are problems with this model: it is Orientalizing, hegemonic, and fantasy-driven. After evaluating the work of the West-Eastern Divan Orchestra, this paper concludes with a suggestion of how music should be incorporated into conflict transformation. Music does have a place in conflict transformation and it is case-specific. My main findings are significant because these models can be applied to other conflicts and art forms.

## **RYAN MULLANEY**

*Honors in Public Policy*

*Adviser: Assistant Professor of Education Khuram Hussain*

"Black Schools, White Cash: Historicizing Black Education Debates"

In this piece, I attempt to situate contemporary Black education movements within the context of racial equity schooling efforts dating back to the 1860s. I contend that while prior generations of Black educators have urged that schooling must be both liberatory and collective, the dominant contemporary paradigm of elite Black educators rejects these principles. Instead, these thinkers can be roughly characterized as "neoliberal," or, embracing individuated, market-based logics in their approaches to education policy. I critique this position as historically distinct and self-defeating, while also recognizing the constrained political position of Black political actors. Although such leaders do not cohere with the liberatory efforts of prior educators, this reflects the impossibility of racial justice in neoliberal schooling, rather than short-sightedness or "false consciousness" on the part of Black educators.



## **MAXIMILLIAN PIERSOL**

*Honors in Philosophy*

*Adviser: Assistant Professor of Philosophy Carol Oberbrunner*

*"The Force of Art: A New Natural Philosophy"*

My investigation is into the nature of the communicative art experience. Through prisms of aesthetic inquiry and collective psychoanalysis, the goal is to understand the architecture of our engine of tradition, knowledge and progression. My method of free thought moves between and outside of continental and analytic philosophy, surfing the thought of many philosophers and artists spanning Presocratic to contemporary thinkers. By describing the aesthetic mode of a sensible and ideational world of "becoming," as well as the physics and metaphysics of natural relations, I speak to concepts of ontology, aesthetics, Being, revolution, humor and the smile, consciousness, and the nature of Ideas. My basic argument is that the uncontrolled excitement of Art contains sensational information, implications, and emotional states that relate us to the world and force us to become intelligent.

## **EDWARD PRESSMAN**

*Honors in Architectural Studies*

*Adviser: Assistant Professor of Art and Architecture Kirin Makker*

*"Rethinking the Automobile: Addressing the Potential of the Automobile in the Next One Hundred Years Through Design"*

My Honors Project is an investigation of the history of Automotive Design, and an exploration through design of the future of the automobile. My intent is to design a series of concept vehicles that could foreseeably be the future of the automobile, this includes adaptation of modern material technologies, and efficient drive systems. Overall the project will explore the history of how cars became the way we see them today, and through a design project, discover a possible future identity for the automobile.

## **KRISTIN RESSEL**

*Honors in Psychology*

*Adviser: Assistant Professor of Psychology Brien Ashdown*

*"The Early Bird Gets the Worm: How an Early Childhood Education Program in Rural Guatemala Prepares Students for First-Grade"*

The purpose of this study was to evaluate the effectiveness of a model classroom implemented in rural Guatemala in preparing kindergarten students for first grade. Students and their parents from both the model classroom as well as traditional classrooms were interviewed, and a thematic analysis was conducted.

Almost half of Guatemalan children quit school before 6<sup>th</sup> grade. One NGO in rural Guatemala works with local educators to maintain a "model" classroom preparing children for greater academic success. The model incorporates more hands-on activities, requires parents spend time in the classroom, and provides training to the teacher. The current study measures the socioemotional preparedness of children to begin primary school. Students ( $n = 21$ ) and parents ( $n = 21$ ) in the model classroom ( $n = 42$ ), as well as students ( $n = 21$ ) and parents ( $n = 21$ ) in a non-model classroom ( $n = 42$ ), participated via interviews. Among the results are that model classroom students felt more excitement ( $t = -1.91, p = .06$ ) for school and their parents were more involved ( $t = -4.15, p < .05$ ). The model classroom benefits the students and could be employed in other classes in the school and surrounding area.

## **DANIEL SCHONNING**

*Honors in English*

*Adviser: Assistant Professor of English Geoffrey Babbitt*

*"A Ruined Stairway in Snow"*

My current project is a collection of poems that revolve around the ethereal, distant, and amalgamated character of "Mahmud," a young boy growing up in Syria. I use compressed lyric poems to explore concerns of origin and the unconscious's role in constructing the self. My collection also plays with movement across boundaries of time, space, and perspective.

In terms of method, the current collection undertakes varied forms and mechanisms throughout. From formal rigidity with careful attention to scansion, to poems that are fully prose, the project tries to match its content with a flexible and reactive form. It uses magical realism and a sometimes-surreal style to access subjects that are otherwise too far or opaque for my reach, and tries to then develop them in image, to cast them as they appear.

My project was heavily influenced by eight months spent in Amman, Jordan, working for the UN Relief and Works Agency, with a focus on Palestinian refugees fleeing the war in Syria. Part of that job was to meet with grade school students living in Irbid—in the north of Jordan, along its border with Syria—and collect their stories as a means to build visibility for the UN Relief and Works Agency (UNRWA).

The current project developed its first few poems during that time, and—though those first buds have mostly been augmented or nipped since—its metaphysics consistently return to the feeling that that time and place evoked. Though the piece deals with subjects far removed from myself, I take care not to undertake voices or perspectives over which I have no claim; rather, I try to abstract away from direct representation in a way that produces a piece of art built from many sources, rather than an account of events of any one in particular.

## **CASSIDY SMITH**

*Honors in Psychology*

*Adviser: Assistant Professor of Psychology Brien Ashdown*

*"It's a Beautiful Day in the Neighborhood: Overcoming Barriers Against Help-Seeking with Community Social Capital"*

Despite the alarming prevalence of mental illness in young children, and the high efficacy of early intervention programs, not all parents seek help for their children in need. Being of low socioeconomic status further restricts help-seeking by parents in multiple ways – from financial barriers to lack of education surrounding mental health. Stigma towards children's mental healthcare is perpetuated by both children and parents through stereotypes and discrimination. The neighborhood and surrounding community are integral in decreasing these barriers, especially stigma, by providing support and encouraging help seeking through the creation of social norms targeting of harmful stereotypes and discrimination. By examining the relationships between stigma, socioeconomic status, social capital and help-seeking attitudes of parents for their children, my honors project examines why some children do not receive mental healthcare services in spite of their need.

## **KARLY WAGNER**

*Honors in Sociology*

*Adviser: Assistant Professor of Anthropology and Sociology Kendralin Freeman*

"Gender and Race on Display: A Study of Cultural Production and Social Reproduction in Museum Exhibits"

How we commemorate public history informs the way individuals create historical memory. I am exploring how museum exhibits create collective memory that contributes to inequalities in race and gender. I am examining three history museums in upstate New York, analyzing the exhibits, as well as visitor interaction and reception of the exhibits. The creation of memory is not static; it is therefore necessary to study how and what society chooses to commemorate, and determine whether or not it recreates previous stereotypes and inequalities, or if it challenges pre-existing historical narratives.

## **LAUREN WALTER**

*Honors in Biology*

*Adviser: Assistant Professor of Biology Shannon Straub*

COMPARATIVE GENOMIC ANALYSIS OF APOCYNACEAE PLASTOMES

Flowering plant chloroplast genomes (plastomes) are typically highly conserved in gene structure and content, but as more plastomes are being sequenced, more examples of divergence are being identified (Jansen and Ruhlman, 2012). These divergences are important to study because they can be used to explain the phylogenetic relationships and explain the different patterns of evolution among flowering plants. With the advent of Next Generation Sequencing, sequencing genomes has become increasingly inexpensive and efficient (Mardis, 2013). New chloroplast genome data for seven of species from the flowering plant family Apocynaceae was done using Illumina sequencing. A comparative genomic analysis was done using the newly generated data and 25 publicly available plastomes from the family Gentianales.

This study focuses on pseudogenization of genes that are thought to be essential for plant function. For example, the *accD* gene, which has been found to be essential in other flowering plants, has become a pseudogene in *Carissa spinarum* (Kode, 2005). It is hypothesized that pseudogenization of essential genes can occur because the functional gene sequence has moved to the nuclear genomes (Williams, 2015). Additionally, repeat content was analyzed across 26 plastomes. *Aspidosperma cruentum* had the fourth highest level of repeat content when compared to 25 publically available Gentianales plastomes. This suggests that *A. cruentum* has a high rate of molecular evolution (McDonald et al, 2011). As more plastomes are sequenced, more divergences, like those found in *A. cruentum* and *C. spinarum*, are found. Plastomes are still highly conserved, but patterns of divergence can be used to explain the phylogenetic relationship between Apocynaceae plastomes.

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***ALLISON WILCOX***

*Honors in Chemistry*

*Adviser: Assistant Professor of Chemistry Kristin Slade*

**“Enzyme Mechanism Influences Macromolecular Crowding Effects”**

My honors project in chemistry focuses on the phenomenon of macromolecular crowding. The presence of macromolecules in the cell (proteins, nucleic acid, carbohydrates, etc.) is known to impact enzyme behavior by altering protein conformation, slowing diffusion, and promoting enzyme-substrate binding. Despite evidence of macromolecular crowding altering protein behavior, conventional biophysical studies to characterize proteins have been traditionally performed in dilute solution, absent these macromolecules. Using a mechanistically informed approach, I explore how macromolecular crowding impacts the kinetics of yeast alcohol dehydrogenase (YADH).