

PERSONAL STATEMENT

Describe your educational and career goals and personal factors that have influenced your decision to pursue graduate or professional study. Limit your statement only to the printable space provided below.

There's nothing like a good test. When the clock is ticking, I feel a giddy, freewheeling joy that might be the best feeling in the world. As a result, I constantly challenge myself, and my preparedness for graduate school stems from this drive's presence in every aspect of my life.

Marching band, for instance, is a challenge every day. Most college bands use a smooth marching step, allowing air to flow cleanly through their instruments; we employ a more physically demanding "stop at the top" high-step in which the legs move choppily up and down. The occasional bloody lip caused by my trumpet's recoil is no longer a surprise, and each rehearsal represents a test of endurance. The palpable sense of accomplishment at having made it through another practice is just as rewarding as the cheers of 80,000 people following a successful halftime performance.

I push myself academically, as well; I enjoy the challenge offered by high-level math and physics. During my freshman year, when I realized the completion of general engineering prerequisites would mark the end of my instruction in the subjects, I began searching for a way to avoid missing out on anything I found especially interesting. Double-majoring in Applied Math, Engineering & Physics (AMEP) and Astronomy-Physics met that goal and has since produced unexpected benefits besides.

By exposing me to four disparate branches of learning, the majors challenged me to perceive and explore connections in material of different backgrounds. At one point, I remember studying the same equations in three classes at once: as pure math, distributions of voltage in empty space, and airflows around a wing. Understanding these links (in this case, the analogous relationships between an airflow and its velocity potential versus electric field lines and their generating voltage) has given me a deeper understanding of the various subjects than I would otherwise have had. I think of these connections, where the same math describes unrelated concepts, as homonyms.

Pure math, the language from which these homonyms come, is an important and necessary field of study. I understand and share in the feeling of satisfaction that accompanies an elegant, concise proof; this year, a BBC News article by James Gallagher explained the areas of the brain stimulated by the works of Mozart, Shakespeare, and Van Gogh are also activated by "beautiful" math. Rather than study the language itself, however, I would rather use it to better describe and understand the world around us.

I will never forget a partial differential equations class that demonstrated the modeling of hagfish slime production and long-term temperature trends in the London Underground. These analyses had furthered study of the topics by yielding predictions subsequently verified by observations. The examples may seem esoteric, but the implications are enormous. Math can model anything from traffic patterns to economic trends to the fluid dynamics of stellar interiors. It is an enormously powerful tool with which we can increase and test our understanding of countless branches of science. I have already used it to find creative solutions to problems in my research with Prof. Mierkiewicz and Dr. Oliverson.

I helped make the first high-spectral resolution observations of lunar exospheric potassium during May 2013 and subsequently processed the data during my internship at NASA Goddard. While comparing sodium and potassium emission trends as a function of lunar phase, I found that all the observations contained excess light scattered into the telescope due to the targets' proximity to the moon. For most of the images, this was a minor nuisance. In some, however, the scattered light distribution was so irregular that the resultant profiles could not be fit.

Solving the problem of this scattered light was my task for the summer, but I had already unsuccessfully tried to do so by discretizing the images into separately analyzed sectors. While this made me nervous to try again, I knew the hardest problems yield the best solutions. As I fired up Matlab and began organizing my thoughts, I felt the old, familiar sense of giddy joy set in. The test had begun.

Eventually, I successfully modeled the distribution by visualizing the raw data as a continuous, two-dimensional function. This represented a significant departure from the team's previous approach, as to this point most analysis had been performed on processed, one-dimensional line profiles. Removing the modeled light from the data increased our signal-to-noise ratio to such an extent that we found evidence of potassium during periods of the lunar cycle when emission was thought below the limit of detection! The crux of the solution lay in applying mathematical concepts to another branch of science, a direct result of my experience with multiple disciplines in AMEP.

Seeing my seemingly unrelated math background pay dividends on research through the development of a model confirmed my decision to seek an Applied Mathematics PhD and, eventually, a professorship at a major research university. Creatively applying mathematical concepts and algorithms to challenging problems in a variety of fields is necessary for scientific advancement: it is absolutely what I want to do professionally. I am particularly interested in astrophysical processes, many of which have been historically difficult to model robustly.

Consider the requirements of an effective core-collapse supernova model. The densities of matter involved vary over ten orders of magnitude, and temperatures vary over five. General relativity must be included to obtain accurate gravitational results. The modeled fluid dynamics must reflect how isolated pockets of heavy elements from the core are forced into lighter, upper layers, disrupting the star's onion structure. Finally, additional methodology is required to evolve the system until its optical light curve can be generated. The variance of scales and physics requires creative, innovative applications of mathematics to solve poorly conditioned systems of many equations. While advances towards such a model would therefore be applicable to numerous other fields, its development would be remarkably difficult.

I can't wait to get started. After all, there's nothing like a good test.

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I was born in East Los Angeles, California to two undocumented Mexican immigrants from Guadalajara, Jalisco who did not complete their secondary education: Claudia and José. They immigrated to the U.S. in search of a better life with visas they overstayed in the 1980s. Growing up, I moved constantly with my family in search of better employment for my parents. We also engaged in internal migration to try to circumvent the workplace raids and threats of deportation my parents faced when I was a child. Thus, I never maintained a sense of permanence in the same school or community.

I grew up as the English-to-Spanish translator, secretary, and accountant for my parents' employment and immigration affairs—knowing what an N-400 form was before knowing my times tables in elementary school. My parents lived “in the shadows” in the United States without documentation for years. While they eventually became naturalized U.S. citizens, their lack of high school or college degrees and poor English proficiency nevertheless forced them to accept low-paying, highly laborious housekeeping jobs to feed and shelter my siblings and me.

At age 16, I found myself homeless after my father forced my mother and me out of his Las Vegas home. I then quickly had to become independent and soon thereafter, a parent to my sister, Belen, and brother, Andres, because my father lost his home. Part of my sooner-than-expected induction into adulthood involved working thirty-five hours a week at McDonald's while a senior in high school to help supplement my mother's income. Although these hardships made growing into my identity very challenging, I still gained invaluable discoveries about my resiliency. Such personal factors, too, profoundly influenced my decision to pursue graduate and professional study.

School eventually became a safe haven for me. Here I became heavily involved in afterschool theatre, which, for me, served as a fictional world where I created empowered characters onstage to avoid my precarious situation at home. My theatre education instilled in me an understanding of the possibilities I should fearlessly act out—possibilities unrestricted by my socioeconomic condition. Additionally, theatre's development of teambuilding and analytical thinking skills further informed the way I advocated for my family and me. I realized that my situation, as well as the plight of other Latinos, could be improved by onstage and academic success.

Once at the UNR Honors Program, I wanted to ensure all children, irrespective of their socioeconomic or immigration status, have access to educational theatre as a mechanism for social change as I did. As a result, I co-founded a youth theatre program, Spotlight: Academy for Young Actors, at Reno's Good Luck Macbeth Theatre in 2012. I then individually secured a partnership agreement with Washoe County School District to teach bilingual theatre classes to low-income, immigrant Latino students. After establishing these programs, I then secured partnerships to bring Spotlight to Costa Rica, México, Cuba, and Chile, where I have taught hundreds of underprivileged youth.

Just like my family and me, the youth and families I have met in the U.S. and Latin America all have unique domestic and international migratory experiences. While in México and Cuba, I had the opportunity to witness firsthand the circumstances from which immigrants similar to my parents emigrate. In Costa Rica, I saw the reaction of “Ticos” (Costa Ricans) to the unauthorized immigration of Nicaraguans.

While in Chile last summer, I attended the Jornada Migratoria: Derechos de las Personas Migrantes y la Gobernanza de las Migraciones en Chile, an international conference on immigrants' rights and immigration to Chile. The opening statement of the Jornada Migratoria reverberated throughout Chile's former Senate chamber with great force: “El derecho de nacionalidad es un derecho humano fundamental.” Among the internationally renowned leaders present was Mr. Fior Maria Rigoni—representing the Scalibrini International Migration Network—who proclaimed that the right to nationality is a fundamental human right. Mr. Rigoni's timely assertion counteracted the xenophobic reaction of Chile's citizenry to recent waves of undocumented immigrants from neighboring countries like Peru, Colombia, and Bolivia. My experiences abroad—which were inspired by my personal circumstances—also reaffirmed my academic interests and professional goals in immigration history and law.

Such interests and goals, moreover, have led me to conduct research with the UNR Latino Research Center and Department of History on the impact of immigration reform on the unity of mixed-status Latino families in the U.S.—which I presented to members of Congress in Washington, DC; undocumented young people known as DREAMers—which I am publishing in a full-length book; and twentieth century immigration of Central American children to the U.S. for my Honors history thesis. These investigations have confirmed my educational goals of pursuing a joint PhD-JD in history.

My interest in pursuing a joint PhD-JD program to study immigration policies and history, specifically, stems from my experiences as a member of a low-income immigrant family; close interaction with migrant children from Latin America through Spotlight; academic and professional experiences in immigrant-sending and -receiving countries; and undergraduate research, including my Honors history thesis, on the topic.

As a PhD-JD graduate, I would be better qualified to more effectively complete my career objective of working for a government agency like the U.S. Immigration and Citizenship Services to propose sound policy alternatives through (legal and history) research and advocacy. Here, I would ensure migrant youth and their families have access to legal representation, education, and opportunities for family unity. With a PhD and JD in hand, my abilities as an activist and scholar who uses research and advocacy to improve the lives of low-income, undocumented, Latino immigrants in the U.S. will only be amplified.

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It is rare that someone tremendously, yet inadvertently, influences your life without even knowing it. However, for me, my grandfather did exactly this. When he was diagnosed with Alzheimer's disease ten years ago, I knew that I was called to combine my empathy, compassion, and love of science into a career of medicine. As my grandfather cognitively declined, I became more interested in Alzheimer's, even researching the disease in my spare time. Delving into the literature caused my interest in the brain, its functions, and pathologies to flourish, even as my grandfather continued to decline. Eventually he progressed to the point where he no longer recognized me. His deterioration motivated me to do something more than just learn about the disease. It drove me to take action.

During the summer of my sophomore year of high school, I began to volunteer at the Long Island Alzheimer's Foundation (LIAF). LIAF provides support and care both for individuals with Alzheimer's disease and for their families. In the five years that I volunteered, I worked hands-on with early- and late-stage Alzheimer's patients, assisting them with moving and eating, facilitating mind stimulating activities, fostering social interactions, and leading group exercise and meditation programs. However, it was not my weekly duties, but rather the patients, who bolstered my love of medicine the most. I realized that this terrible disease transcends race, age, and gender. Directly witnessing the devastating effects that the disease has on both patients and their families, and appreciating the permanence of it, motivated me further. This experience sparked me to want to do more than just be a social companion to patients like Ellen, the forty-five year old artist who no longer recognizes her own children, and Beatrice, the sweet lady with both Alzheimer's and ALS, whose hope that she will one day be liberated from her self-proclaimed "prison sentence" is both humbling and empowering. I also found a deep love for working with the geriatric population while at LIAF. Working with this extremely vulnerable and underrepresented demographic is both satisfyingly challenging and personally rewarding. Moreover, my time at LIAF highlighted the importance of psychosocial aspects of medicine. A little laughter, a touch of compassion, and a dash of love are just as important as, and can even bolster the effects of, the best medicine.

Inspired by my work at LIAF, and fueled by my desire to understand the brain, I began researching in the Cognitive Neuroscience of Memory Lab as a sophomore at Villanova, under the direction of Dr. Irene Kan. My research focuses on cognitive aging and memory, specifically on the interaction between semantic and episodic memory and the positivity bias in aging individuals. Probing these topics, along with certain pathologies of the memory systems (including amnesia due to brain aneurysms and dementia), has enhanced my fascination with aging, driving my desire to study medicine. My research has afforded me a deeper understanding and appreciation of the inner workings of the scientific method. With the current direction of medicine and the scores of new research being published daily, understanding the fundamentals of empirical laboratory research will allow me to be informed and to offer the best treatment options to my patients. Fully convinced that I wanted to study medicine, I was accepted into the Pre-Medical Journey Program at Long Island Jewish Medical Center (LIJ) after my sophomore year of college. In this program, I observed six different areas of medicine, spending one week shadowing doctors in each department. However, spending time with the geriatrics and palliative care team, which consists of physicians, chaplains, and a social worker, influenced me the most. This experience underscored the importance of a balance of science, medicine, teamwork, human contact, and empathy in excelsior patient care. This balance was exemplified by my visit with Jane, a cancer stricken Jamaican immigrant. Because she was feeling homesick, lonely, and was in severe pain, members of the team and I sat with her for a period of time, listening to her stories and laughing with her. When we left, she was visibly in better spirits, despite her discomfort. This experience, combined with my work with Alzheimer's patients, highlighted the fact that medicine is only part of a patient's treatment. Empathy, care, kindness, and teamwork are just as important in treating a disease. Therefore, I aspire to be a doctor who works cooperatively to treat the whole patient. This internship offered me an incredible opportunity to witness top-notch medicine in action.

My drive to pursue a career in medicine stems from a summation of experiences, beginning with the influence of my grandfather and blossoming with my work at LIAF, the Cognitive Neuroscience of Memory Lab, and LIJ. People such as my grandfather, Ellen, Beatrice, and Jane have left me with a restless need to improve the lives and ease the suffering of those afflicted with illnesses, one that can only be quenched by practicing empathetic, patient-centered, team-oriented medicine.

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For two terms at the University of Oxford as a Visiting Student, I studied feverishly in the medieval archives of the city. Personal, weekly one-on-one tutorials with Oxford dons pressed me in my research; to form my opinions – to form myself. In spare moments, I wandered the city's extensive museums or attended candle-light dinners with friends – Oxford students and professors alike – who discussed theological philosophy or the day's politics over meals. I hopped a bus to London and climbed the steps of St. Paul's Cathedral to the tippy-top. As I spiraled up and up those cold narrow passages, I hugged my notebook close to me. I was determined to investigate the grand dome's construction, which I had examined in a paper just days before. Once out on my narrow perch, clinging to the cold, iron railing like the Hunchback atop Notre Dame, the skeletal wings of the dome fanned out beneath me. The wind swept up to tussle my hair and redden my cheeks, threatening to carry me away and toss me mercilessly into the jaws of the bustling city far below.

In England, and in my travels beyond her island borders, I discovered the storied power of architecture. I spent my "Easter Holiday" in Rome, a renowned capital of Art History. I found it to be beyond any expectation I held. In the Mediterranean city, sixteen days alone with its ancient architecture and present-day inhabitants changed me. The secrets of the past carry forward in the History of Art, from generation to generation; heart to heart. My adventures abroad, as no longer simply a student but an Art Historian, brought the great tableaux of history to the forefront and made all the inconceivability of time and existence an instant reality.

This reality lives on in the essays of today and the graduate studies of tomorrow. My time abroad encouraged me to apply to a variety of Art History Masters programs in England. Ultimately, I hope to return to the University of Oxford, where in 2014 I had gained first-hand knowledge on the intended focus of my future graduate work. With Oxford faculty in a Victorian Intellect and Culture tutorial, nineteenth-century British art captivated me; the primary sources were in my hands and on the streets, in the medieval atmosphere and libraries of the city I came to love. Walking the cobblestones each day, I stepped into the imaginations and realities of young romantic PreRaphaelites and Aesthetes. An age away, they confronted a drastic technological, social and consequently psychological change; an uncertain future had many clinging to a perceptively golden past. Today, I see a parallel shift in our world, and their questions and concerns spoke to me eloquently in the magnificent language of art.

Upon my return from Oxford, I began my undergraduate Honors Senior Thesis entitled "Art, She is a Goddess: Ruskin, Whistler, and the Female Face of Art." I focus on the contrasting theories of John Ruskin and James McNeill Whistler, relating their rhetoric to depictions of and attitudes towards perceptively "modern" women. Ultimately, I touch on greater themes of beauty in art and its true meaning to different people in a rapidly changing British society. Upon completion of this undergraduate work, I hope to pursue my thesis not only in this Masters but in a Doctorate.

The study of Great Britain at this period has been so enlightening for my own understanding of my country and the state of global affairs. I feel most ardently it is by studying the Victorians in England I will best be able to follow the intellectual path I am seeking. This period is a fascinating doorway for me as a scholar of the Humanities. Their study of their own past – the past we share with them - opens a way into the ancient annals of history, philosophy and art; their legacy for us I can envision everywhere in our present. That their art shines forward to us today, inspiring me in so many different ways, is a great gift to me. I hope, as representative of Phi Kappa Phi and of my country, I can share these inspirations with others in years to come. The Victorians ask some important questions for all realms of Academia – to continue to ponder them, in a variety of academic contexts, would be exhilarating. I would like my experience in England as a graduate student - the knowledge I gain from my studies and exchanges with peers and tutors – to enrich my ability to teach at the collegiate level in the future. I feel intensely passionate about sharing and engaging others in my own inspiration: the world of the Art History I believe so vital in our understanding of our world, past and present.

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My freshman year I joined the Oklahoma City University Parliamentary Debate team as a way to develop my public speaking skills, and quickly found my interest in inevitable economic or nuclear collapse dwarfed by fascination with the way words were defined and understood in each round, the theoretical framework on which the round could be weighed, and the unspoken ideologies perpetuated by the opposition and myself. Debate arrested me not only through the whirlwind exposure to new modes of thought, but also through the explicit enactment of texts alive and in dialogue. The process of reading, writing, and revising in round, of seeing conflicting ideas interlock and reshape, became for me a vivid illustration of the way ideas interact in and influence our world. As a student of English and Film, I was also struck by the constant coaching to “tell the story” that would win the round, of using narrative as a tool to be sharply deployed. Through my undergraduate studies, I researched and responded to the idea of narrative as a primary means by which people engage with their environment, decisions, and each other. I was also distinctly influenced by my work as a Film Production major on numerous sets, where I would often look up, in the midst of a long day of shooting, with the sudden and surreal impression that I was crawling through the bustling underbelly of a narrative, constructing a neatly framed reality that might pass as “natural.” I started thinking in the same way about the worlds bustling beneath text, populated by the narrative perceptions of both author and readers. Textual narrative remains my primary area of interest, and this passion directs my goals for graduate school and beyond. I feel an intense need to create, whether that be creating scholarship, fiction, or ideally, both, as I am very inspired by theorist/creators such as Nadine Gordimer and Frank O’Connor.

I want to be spurred on in my fiction, both in terms of tangible production and artistic quality. I know the latter to be slippery term that might only be known subjectively, yet I know instinctively I am still far from that goal. I want to examine texts, my own and others’, from a writer’s perspective even as I develop my understanding of what it means to be a writer. Graduate studies or no, I plan to always write to the best of my ability, spurred on by the pleasure and intrigue I find in fiction. I aim to write fiction while simultaneously contributing to literary criticism and theory, or at the very least I feel that if I end up doing one or the other I will be bolstered by deep engagement with both, especially as a person that has always felt and resisted the pressure toward singular interests. I know that, whatever my future path may be, I will always continue to write fiction and to question narratives. I view the M.F.A not as permission to write, then, but as opportunity to write and to learn with the support and stimulus of a rigorous and engaging community.

The subjectivity of narrative remains a large preoccupation, probably stemming from my growing awareness that life is subjective, filtered through unique world-views, experiences, and references, as I have learned watching my Chinese mother struggle to communicate herself to neighbors, law-enforcement, and even her husband, my Caucasian father. Just by observing two angry people completely blocked from one another, or from feeling disconnect in my own life and realizing other humans are just as indomitably convinced of their own rightness and reason as I am, I have become absorbed by the incredible subjectivity of human experience. This has led me to an intense interest in point-of-view in fiction, and I am fascinated by articulations of miscommunication, the plurality of voices and contexts within a single text. This growing awareness of subjectivity also drives my need to write fiction, to manifest textually the bizarre experiences I feel myself living and questioning in interactions with others and self.

I hope to rigorously pursue and modify these interests, drawn by the ability to mine narrative for multiple meanings and also to create narrative with no explicit meaning in mind, just questions and wonder. I believe that writing will always be shaped by interaction with people, a willingness to engage and invite engagement. As such, vocationally I seek the opportunity to teach because I feel like it represents an invitation to never stop learning. I had the opportunity last semester to teach a class period on form and analysis of George Saunders’s short story “Puppy,” in a required lower-level English course at Oklahoma City University. I found the experience invigorating and nerve-wracking, and the process of translating my own brain to a myriad of other backgrounds and beliefs influenced the way I thought about the story and my own fiction. My long-term goals, then, involve teaching and creating, with both activities grounded by careful thought, open engagement with the world around me, and a deep-flowing impulse to write and read stories, forever and often.