

## Personal Statement

Four years ago I decided to devote my life to research. The person responsible for my decision, Dr. [REDACTED], taught my introductory evolutionary biology class. He lectured in a simple, straight-forward style, explaining the biological world and the principles that governed its processes. After that class, I contacted faculty conducting amazing research until I met my current adviser, Dr. [REDACTED]. After talking to Dr. [REDACTED] for the better part of an hour about her research, she offered to show me the sediment lab and the instrument room. After a brief introduction, she asked the current Postdoc, Dr. [REDACTED]: "Think we could do with some help around here?" I was greeted by a warm smile and a "Sure, we can!" Later, Dr. [REDACTED], helped me to understand the fascinating effects which gradual climate alterations have had on the course of human history. He is one of many people to whom I owe a great deal of gratitude.

Through third grade I attended unstructured after school programs; during fourth grade I met and was mentored by Mrs. [REDACTED]. Free of charge, she directed my after school time productively; after a year she sponsored my application to the gifted program where I excelled through high school. Her example has inspired me to give back to the local community. I have helped out at the local Boys and Girls Club, a free after-school program for those children who are too young to return home directly after school. The elementary-age, predominantly minority children come from inner-city neighborhoods in Atlanta where crime and drug abuse, graffiti and unemployment are ubiquitous; the Boys and Girls club offers those children a place of sanctuary where they can get help with homework, play basketball, and work on arts and crafts. Let me tell you, those kids can sure play basketball; not one of them was past my shoulder, yet I won not a single game with them - in fact my ungainly basketball form had more than one kid there doubled over with tears of laughter. Jokes aside, those young kids are incredibly bright and inquisitive; at this young age, role models have a great deal of influence. The partnering of universities and organizations such as [REDACTED] with the Boys and Girls club would lead to a decrease in the disparity in education level and the socioeconomic gap, as well provide these children with a tangible evidence of academic application.

Earlier this year another chance to engage at the community level presented itself: Dr. [REDACTED] offered to let me help present a lecture to sixth grade students of [REDACTED] Middle School, where I attended a decade ago. We spoke about the coring process, life aboard a research vessel, and ended by showing them a view of my everyday research: a collection of microscopic foraminifera used in isotopic analysis projected on the white board. As the ahhs died away, I thought, "How unfortunate that our school system has its last installment of Earth Sciences at the sixth grade," For many students 7<sup>th</sup> grade brings them as close as they will come to understanding the intricate processes on which we depend. Many of the students were engaged for the duration of the forty-five minute presentation. As questions were fired at Dr [REDACTED] and myself by an albino girl of African descent, I caught myself thinking: "How many curious, young minds are we losing through inadequate exposure to the possibility of science as a career?" My presence there in that classroom, a classroom in which I had been a student ten years ago, confirmed to those students that they could also eventually become a researchers. Coincidentally, it was at this school, ten years ago, that I developed a keen interest in music; this interest would bring me my first pupil.

At [REDACTED] Middle I was recognized as one of two outstanding cellists, participated in an Honor Orchestra workshop with the Atlanta Symphony Orchestra, competed successfully at All-State, and went on to play in the [REDACTED] Orchestra. While still in high school, I was

contacted by my first music teacher. She asked me to tutor an elementary student who was interested in learning cello. Over the next three years I won both his friendship and respect. While tutoring David I had for the first time the incredible experience of seeding a skill and watching it blossom. I can still remember our last words before I left for college: "You have done well today, David." "Thank you," was his simple reply. This, my first tutoring experience, was one of my most rewarding relationships.

At the onset of our lessons, David would excitedly catalog where he has seen me during the week, usually running with the cross-country team or cycling to school. At first I rode my bicycle to become independent of my parents' schedules, but as I studied earth sciences [REDACTED], cycling has taken on more of an ideological motivation. My first year at [REDACTED], I joined the [REDACTED] cycling team, and grabbed the alias bike@[REDACTED] as my e-mail. For years I would commute on my bicycle. Recently, the demand has spiked for bicycle on campus. The bicycle racks are saturated by 9:00AM; people then move on to claim the nearby park benches and stair railings as the day progresses.

After writing a letter to the undergraduate student body president regarding the dearth of bicycle racks, I was appointed to the Sustainability Task Force; since then, I have been working closely with a handful of others spearheading projects such as bicycle share/affordability programs and, the addition of fuel efficient vehicle parking. This Task Force sprang from a course I took last spring. The course delved into the science of climate change, the policies proposed and passed on the state and national level, and international agreements being enacted. Top researchers presented technological solutions on plasma gasification, energy efficiency and nuclear, solar, and wind energy; Georgia Power, the EPA, and the US State Department's diplomatic climate envoy to the UN painted varying perspectives. As a professor, I will sponsor seminar classes similar to this, in which policy, technology and science are discussed concurrently. I will engage not only my future students with the science of climate change, but I will also endeavor to bring this knowledge to young people of the local community; this outreach would take the form of lectures to local schools, tours of the laboratory, and outreach to local media. I am keenly interested in involving young, interested minds in science - especially those who lack the advantages of an affluent upbringing.

That class last semester detailed the devastating effects of climate change, current plans for mitigating these effects, and underscored the importance of fundamental investigation into the mechanisms of the climate system. Addressing the carbon budget with regard to altering ocean circulation is the direction in which I would like to take my future research. My research may help shape our understanding of ocean circulation, on which such crucial systems as the carbon cycle depend. The course of national policy decisions and international agreements on climate change would reflect major discoveries. Today the carbon budget is poorly constrained, and the effects of disrupted ocean circulation projected by the IPCC upon the carbon cycle are grim, if not specific. Should my research discover the extent to which diminished levels of North Atlantic Deep Water were associated with drops in the exportation of carbon into the deep ocean, better climate models will be constructed. International accords will conform to those improved models, and billions of people around the world may have a higher quality of life. I am keenly interested in taking on the role of adviser to legislators for the betterment of humanity: condensing climate science and clearly explaining effects of various levels of mitigation.

Establishing patterns of sustainable living while at the same time meeting the world's demand for energy represent the fundamental challenges of our time. With the guidance of Dr. [REDACTED], I propose to tackle the portion of the problem I am best equipped to handle.