

As a first generation college student, my family didn't understand why I was so adamant about a college degree. As someone who had to pave my own educational path, I know how hard it is to start college without that vital support system of mentors and role models. Without a doubt, I would not be where I am today without a handful of caring, dedicated teachers who supported students like me as unique individuals with diverse backgrounds and distinct needs. I continually strive to be *that* teacher for my students.

I have been a rural high school student, a first-generation college student, an urban high school teacher, first in my family to obtain a graduate degree, and now practicing scientist. These experiences have solidified my belief that *all* students deserve access to a high quality education. To meet this commitment, I above all aim to establish an inclusive and safe climate in the classroom, lab and broader campus community.

Below, I outline how diverse experiences as a student and teacher have shaped my experiences have shaped my educational philosophies in both the classroom and lab.

**Classroom teaching philosophy** - *Student learning* is my main focus as an instructor. With this focus, my success and effectiveness as a teacher is continually measured by what my students are actually learning every day. To measure my effectiveness, I strive to create assessments which accurately measure student learning, which is often difficult in the sciences. Following the collection of this data, I actively reflect on my teaching practice to improve student learning, which is a skill I honed during my time as a high school teacher as a Teach For America corps member. I also strive to incorporate tenants of universal instructional design and multiculturalism into my classroom, which I further developed during my Post-Baccalaureate Certificate program in 'Innovations in Multicultural Teaching and Learning'. As a part of this program, I conducted research on how multimedia can enhance cultural and disability access, conceptual understanding, and critical thinking skills.

In my classroom, I strive to lecture as little as possible, as I believe students working together on 'real science' problems is the best use of in-class time, and my role is to facilitate the learning process by using probing questions identify misconceptions and provide real time feedback in the learning/problem solving process. To deliver the primary content, I will rely on my experience producing screencast lectures (mainly as project videos – see [youtube.com/user/umnforevergreen](https://www.youtube.com/user/umnforevergreen)) and 'flip' as many lectures as possible, allowing students to view lectures prior to in-class meetings. Using these basic tenants of my teaching philosophy, I provide my students a science education more similar to how science is done – a highly collaborative, problem-based application of basic knowledge.

**Mentoring of student researchers** - I have been fortunate to work in labs that highly value the role of undergraduate researchers in our research teams and emphasized the importance of these experiences for students. During this time alone, I directly mentored 7 undergraduate students on their research projects and provided informal mentorship to well over a dozen additional students.

When I take on a new research student, we will immediately work together to develop a short summary of the project background, objectives, and proposed methods. This writing activity helps frame the 'big picture' of the research for students as well as providing a collaborative proposal writing experience – a vital skill in science. By empowering young students to take intellectual ownership and responsibility to execute their projects, I have found my students become more engaged and intrinsically motivated to power through the inevitable challenges. I strongly believe that undergraduate research experiences provide vital reinforcement of fundamental skills in experimental biology surrounding posing tractable research aims and hypothesis, experimental design and research methods, and data analytics. For graduate students and postdocs in my group, we will work closely to identify professional development and research goals that will help them meet their long-term career goals, and meet regularly to discuss progress and identify solutions to new challenges. From a personal standpoint, I find mentoring invigorating – the raw excitement is contagious. My research mentors provided transformative experiences for me, and I very much look forward to providing similarly meaningful research experiences for my students at CSU.

**Teaching Experience** – My diverse teaching experiences have convinced me that closing the achievement gap is vitally important to our society, motivated my desire to be an agent of change and continually improve as an instructor who fosters inclusivity and diversity in my classroom.

**Undergraduate Teaching Assistant** – For three years of my undergraduate career, I was a teaching assistant for an introductory environmental sciences course in the UMN General College taught by Dr. Jay Hatch. This experience gave me the chance to interact with a diverse student body: first generation college students like myself; students representing a wide variety of socioeconomic backgrounds; and students needing developmental education in reading, writing, math, and science. It was extremely exciting and empowering to see that my actions in the classroom motivated students to care about biology. More importantly, I saw my students realize they could succeed at science and use it in their everyday lives. In this role, I led weekly lab and field sessions for over 120 students over six semesters, along with guest lecturing, grading assignments, and holding regular office hours.

**Teach For America** – I was selected from over 25,000 applicants to join Teach For America. In this role, I taught physical science, biology, and the Advanced Placement Environmental Science courses at Soldan International Studies High School in St. Louis. As a part of the intensive TFA training and professional development, I continually improved my skills in course design, lesson planning, teaching methods, and creation of meaningful assessments for inquiry-based science courses.

The underserved students of St. Louis Public Schools historically have achieved at a rate far lower than their peers who live just a few miles away in wealthier areas. The gaps in knowledge and experience my students entered with put them far behind the curve. From 2008-2010, my daily objective was to teach science and close the achievement gap. The students I served primarily identified as black, as well as a large proportion of students who were recent immigrants representing over 25 home countries. This diversity inspired me to draw from the unique experiences of each of my students to enrich everyone's learning experience. Every day, I saw how my expertise in science was helping change the life paths of my students, whether it was ensuring that all my students mastered concepts all citizens should know, or facilitating enrichment challenges for my more advanced students. A former student of mine named Tey'unna, completely unprompted, once told me, "Mr. Dorn, I think education is one of the building blocks of society. Furthering your own education isn't about yourself, it's about how you help others later on with the knowledge you've learned." Many moments in my life have made it clear to me how I can use science to improve the lives of others, with my time in TFA being the most impactful in my development as a teacher.

**Graduate Teaching Assistant** – Upon returning to graduate school, I served as a teaching assistant for two courses, 'Foundations of Biology' and 'Applied Biostatistics'. As a TA for Foundations of Biology, I led 4 weekly discussion sections for over 100 undergraduate biology majors. I would plan and deliver lectures on various laboratory concepts and data analysis problems, guide student research groups, and help troubleshoot lab issues. For this work, I received the UMN College of Biological Sciences Outstanding Performance Award for TAs. As a TA for Applied Biostatistics, I was responsible for attending each biweekly lecture/lab to assist students working through practice problems in R. I also held weekly office hours, graded assignments and exams, and designed and delivered a guest lecture on using R for analyzing RNAseq datasets.

**MSU-Moorhead Adjunct Faculty** - I was the instructor of record for a biotechniques course offered by MSU-Moorhead. My overall learning goal for this course was to enable students to become independently functioning molecular biologists capable of utilizing the latest bioinformatic and wet lab methods. The focus of the course is to provide upper division students an in-depth learning experience in the modern techniques used in nucleic acids and bioinformatics research. As there was no existing curriculum for this course, I designed and implemented a research-based experience leading students through a series of bioinformatic and wet-lab nucleic acids methodologies. Student research teams worked together to use their own comparative genomic analyses to choose candidate genes, clone these genes, compare genome assembly datasets, examine annotation results, and analyze RNAseq datasets to investigate the expression of their chosen genes.