



COLORADO COLLEGE
Environmental
Studies Program



Newsletter

Fall 2021

Featured Stories:

COVID-19 Update: *See our return to in-person classes & field trips*

Alumni Spotlights: *Catch up with Alumni Nick Zuschneid '18 & Michelle Wolford '21*

New Staff Hire: *Meet the EV Program's new Administrative Assistant, Shannon Gelbman*



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Filip Carnogursky `23 investigates a flower garden at the CSU Rogers Mesa Research Center in Hotchkiss, CO

Fall COVID-19 Update



While the COVID-19 pandemic continues to rage across Colorado, the U.S., and the globe, Colorado College's vaccine mandate for all students, staff and faculty have brought the return of in-person classes (with masking indoors) and the pre-pandemic buzz of students to Tutt Science each morning. Better yet, the EV Program is thrilled to share the return of one of its signature qualities that separates it from other EV Programs across the country: field trips! Blocks 1,2 and 3 have had field trips abound, with trips to Pikes Peak, Chico Basin Ranch, Blodgett Peak, Sondermann Park, Buena Vista, Ute Valley Park, Red Rocks Open Space, Florissant Fossil Beds National Monument, and the towns of Penrose, CO & Hotchkiss, CO! Field trips have been predominantly outside, with masking required indoors and during transportation, while we also provide contact tracing throughout and rapid covid tests, if necessary. Hopefully, we can continue to provide safe and immersive field experiences for students in the coming blocks.

While we recognize the constantly changing nature of this pandemic and the uncertain conditions of future blocks as winter approaches and new variants emerge, we remain grateful for the opportunities and experiences we have already been able to provide students. We recognize the privilege of our vaccine access allowing us to embark on scientific adventures while many countries struggle with acquiring and distributing vaccines.



Interview with the new EV Administrative Assistant Shannon Gelbman:

Can you tell me a little bit about your life before you started this position?

Before I moved to Colorado and joined CC in 2019, I lived in Omaha, NE. There I worked for the Buffett Early Child Institute as the Office Assistant for the Workforce Planning and Development team. The Buffett Early Childhood Institute works with schools, communities, and families to apply the best of what is known about early care, development, and education and in ways that directly improve children's learning and development. Our goal was to make the state of Nebraska the best place to raise a child when it came to early childhood education. Prior to working with the Buffett Early Childhood Institute, I was the Legal Secretary for the School of Law faculty at Creighton University. I really enjoy working in higher education because the environment is always evolving and the work is very rewarding. I really enjoy helping people reach their goals and higher education allows me to do that.



You've filled a similar role with the Housing Office at CC before moving to the EV Program, how has that transition been for you?

The transition has been really smooth and wonderful. I am learning a lot and applying many of my skills towards my new position. I give many thanks to my two Academic Administrative Assistants who were assigned as my mentors. Ann DeStefano (Psychology) and Mandy Sulfrian (Geology) have been an excellent resource when I have questions about a certain task or process that I am unfamiliar with.

Is there a new aspect or responsibility of your current job that you are particularly enjoying?

While I enjoyed my time in the Housing Office working closely with Student Life and our Maintenance team, I am very excited to be on the academic side of the college where I can interact with the students more and can now collaborate with the EV faculty members.

Who is someone that you look up to/that you feel has had a large influence on how you approach your work?

When I entered the workforce as a young employee I had a wonderful supervisor named Etta who was crucial in the forming of my work ethic. Etta taught me many things but the one that stuck with me is, if you do not know the answer, speak up and ask questions so you can meet the expectations of those you are working with. I carry that advice with me daily.

What hobbies/interests do you like to pursue when not at work?

I enjoy bicycling and hanging out with my miniature dachshund Schatzi. Since moving here I have grown a passion for hiking and take every opportunity I can to check out the lovely state of Colorado.

Alumni Spotlights:



Checking in with Michelle Wolford '21

What events in your life inspired you to pursue a degree in environmental science/studies?

From a young age, I considered myself to be an environmentalist and wanted to combat climate change in any way possible, but I was not sure how I could best accomplish this lofty goal. I knew I loved spending as much time in the outdoors as possible, specifically in water, like swimming in Lake Michigan or kayaking around the rivers of Missouri, and this care for the streams, rivers, and lakes around me forced me to notice the ways the anthropogenic forces and a warming climate shaped these systems. In high school, when the IPCC report was published and when science became politicized, I realized that I could be one of the scientists who studied these pressing issues and work toward effectively communicating important findings to those within and outside of the scientific community. Together, these experiences led me to the Environmental Program at CC, where I was exposed to all the fascinating research related to my interests and inspired me to major in Environmental Science.

What was your most memorable experience from your time with the EV Program?

My most memorable experience in the EV Program was during Energy my sophomore year. We retrofitted a house in the Ivywild neighborhood to be more energy efficient, and it was an extremely fun and rewarding experience. To be able to apply the equations and theory we learned in class to a real-life problem was wonderful to see. And, also, any excuse to be handy in the name of science is always fun for me! All the field trips we were able to partake in through the EV Program all have a special place in my heart.

What have you been up to since CC?

Since graduating from CC last May, I have continued studying aquatic biogeochemistry in streams in the Midwest as well as the Southeast. Over the summer, I interned at the Kansas Geological Survey at the University of Kansas, investigating how stream intermittency drives spatio-temporal trends in water chemistry and spent many days in the field hanging out with the bison at Konza Prairie Biological Station. Now, I am a research technician for the Aquatic Intermittency effects on Microbiomes in Streams (AIMS) project through the University of Alabama. Although I truly miss working in the alpine streams in Colorado, I love the different ecosystems we study down here and the immense biodiversity that characterizes them. Most of my time is dedicated to fieldwork, where we are monitoring the complex relationships between hydrology, biogeochemistry, microbiology, and macroinvertebrate populations in intermittent streams.

Michelle Wolford '21 [cont.]

How did the EV Program shape your current environmental interests/profession, if at all?

Although I was an Environmental Science major, I am super grateful for the classes I took in environmental policy, management, and history. These courses allowed me and others in the department to engage in valuable conversations about the intersections between environmental and social justice issues. As a result, I am pursuing a career in academia that allows me to tackle important scientific questions in the face of climate change while applying my research to pertinent land use and policy decisions that advocate for communities most impacted by these shifts.



I am also so thankful that my advisor and others in EV Program support individuals from underrepresented groups in STEM, and I hope to always be working to make the geosciences a more inclusive and equitable place.

Did you do any research while at CC, or a senior thesis? If so, what were they on?

Yes, I did! I conducted research in Dr. Becca Barnes Watershed Biogeochemistry Lab during the summer of 2019 and compiled our findings in a senior thesis: "Evaluating the Legacy of Severe Wildfire on Aquatic Carbon Dynamics and Microbiomes in Montane Watersheds." My research investigated the impact of the 2002 Hayman Fire, near Deckers, CO, on watershed carbon fluxes, subsequent C processing, and aquatic microbial communities. We found that nearly two decades following wildfire, changes to dominant vegetation and hydrology shifted the fate and character of organic matter exported from soils to streams. Such shifts were furthered by differences in the soil and stream microbiomes, which limit the storage and transformation of C across the landscape. Overall, our findings suggest that wildfire in warmer, drier climates, like we are expected to experience in the Mountain West, could result in steady state shifts.



Alumni Spotlights:

Catching up with Nick Zuschneid `18

What events in your life inspired you to pursue a degree in environmental science/studies?

My desire to spend time outside -- playing soccer, watering the garden, riding my bike, and so on -- fortunately started at a very early age, and this deep appreciation for the outdoors was a major motivation for me in pursuing environmental science (as it seems to be for many that choose this degree). One of the earliest memories I can recall is driving through the Poudre Canyon (located west of Fort Collins) with my parents to admire the leaves changing colors in the fall. It was the first time where I was able to pause and reflect on the immense beauty the natural world has on offer. Growing up in Fort Collins, I noticed the odd juxtaposition of this impressive beauty found in natural landscapes and the depressing sight of degraded, monocropped farm land and overly grazed pastures. This became more apparent when my family began raising thoroughbred horses on a ranch in the foothills, and I could see the impact that animals could inflict on the land when they were taken out of their native habitats and fenced in by humans. Moreover, it was clear to me that even our "untouched" landscapes were becoming wastelands over time. I remember a soccer practice where the sky had turned a dark, hazy red, and ash from a fire up the Poudre Canyon began to rain down on us as we played (which wouldn't be the last time such a thing would happen). I was interested in science and math from an early age, so the older I grew and the longer I spent in the "science world," the more I came to realize how dire of a situation humanity was in with respect to the changing climate. From my first hand experiences of observing horses grazing pastures down to the dirt and watching fires ravage huge swathes of forested land, as well as the additional context of learning what humans were doing to the world from a scientific perspective, I came to the realization that I wanted to be solving these issues and repairing the planet's health. When I got to CC, I knew I wanted to study a scientific discipline, and I began on the chemistry track; however, before long, I became disenchanted by the thought of spending all of my time inside within a lab, and soon gravitated towards the EV-Chem track where my "lab" would become the nature around us.



Nick Zuschneid `18 [cont.]

Looking back, how did your perspective of the EV Program change as you shifted from a student to a Paraprof?

My initial perspective of the EV program as a student didn't shift drastically when I became the paraprofessional for the department. The mission of the faculty was always clear to me: it is imperative to come to a collective understanding of our [i.e. humanity's] role in creating a sustainable world if we want to avoid widespread catastrophe and needless suffering. All of the faculty that I worked with held a sincere passion for this vision, so being in close proximity to



these professors on a daily basis as the paraprofessional made my experience all the more exciting and rewarding. As a student, you aren't entirely aware of the "behind the scenes" effort that professors must devote to their craft: both to teaching and researching. CC is particularly special since it emphasizes the education of students over the output of novel research, which can be overlooked by students since they have no other educational experience to contrast their own with. Teaching is, in my view, the more noble and perhaps more difficult task when compared to doing the research itself, and working as the paraprofessional helped me realize how privileged I was to have professors who were dedicated to education.

What was your most memorable experience from your time with the EV Program?

I loved taking part in Miro Kummel's "Atmosphere-Biosphere Interactions" class -- both as a student and as the EV Paraprofessional. In fact, many of the projects and concepts we explored in that class were inspirations for my eventual career path. The intimate experience of visiting orchards and vineyards to conduct experiments that serve the interests of growers themselves was profound to me (not to mention that these



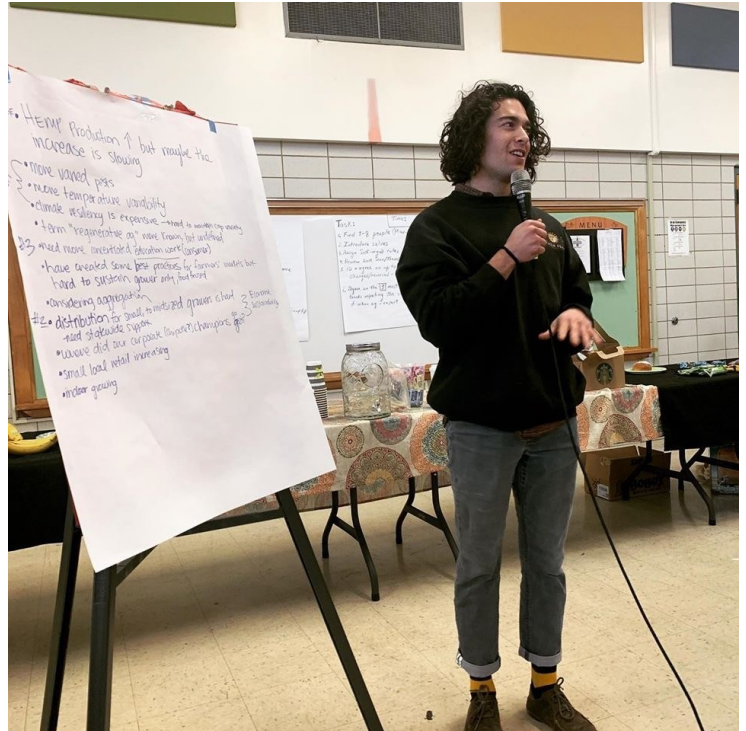
consultations would theoretically improve the ecological functioning of the environment itself). It was amazing to learn how we could "paint a picture" of a unique microclimate with the use of multispectral imagery and environmental data collection tools. For me, it was one of the first times in school where I felt I was contributing to a solution rather than simply learning about the problem itself.

Nick Zuschneid '18 [cont.]

What have you been up to since CC?

I moved to Denver after my time working as the EV Paraprofessional, and have subsequently held a number of different positions in the realm of urban agriculture. For the last 3 years, my full-time job has been teaching children how to grow food sustainably through the lenses of soil health improvement and climate resilience. I teach a year-round "Gardening Elective" at Denver Green School Northfield, which is a public middle school serving neighborhoods in northeast Denver.

I have 12 classes of wonderful 6th, 7th, and 8th graders (over 200 students!), which collectively help to maintain our large outdoor garden as well as the indoor classroom, which includes aquaponics systems, grow lights, and vermiculture composting bins. In the Spring, we will be welcoming goats and chickens to our campus to help "complete" our school's agroecosystem. In addition to teaching, I've been managing several on-site school gardens and developing a gardening curriculum for the non-profit organization SustainEd Farms. In addition to providing educational opportunities for students and resources for teachers, we deliver the produce grown at school sites to local farm share holders and food banks within food deserts in the Denver area. I've also worked for Denver Public Schools' farm-to-cafeteria program, and have been engaged in some private residential gardening as well.



How did the EV Program shape your current environmental interests/profession, if at all?

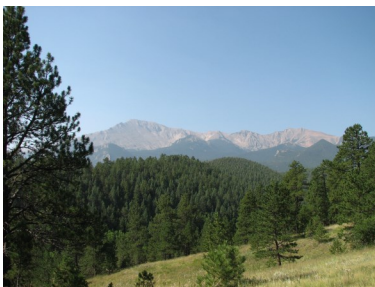
Learning about the world's ecological systems and their interplay with the climate at large was crucial in informing my professional pursuits in agriculture. In the public conversation on climate change, a great deal of attention is given to cutting our carbon inputs to the atmosphere, but very little attention is focused on ways to withdraw and store the excesses of atmospheric carbon we've built. The EV program taught me how to look at chemical cycling holistically, which helped me realize the potential of agriculture to act as a climate solution (as a device for atmospheric carbon reduction). My subsequent professional endeavors in agriculture can be accredited to the "systems thinking" imparted on me by the EV program.

Did you do any research while at CC, or a senior thesis? If so, what were they on?

I spent my senior year conducting research on treeline advancement in the Pike's Peak region due to the changing climate. I investigated the relationship between NDVI -- a proxy for vegetative health calculated with multispectral aerial imagery -- and chlorophyll content within Engelmann spruce saplings that had advanced the treeline beyond the old growth forest.

Renovated Offices

Over the summer, the EV Program renovated its office spaces and conference rooms in order to accommodate newly hired faculty members as the department continues to grow. What was originally the office for the Administrative Assistant has been converted into two new offices, while the Environmental Resource Center (ERC) has been split into a conference room and a shared office space for the EV Administrative Assistant and Paraprofessional.



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