STEFANIE HUTTELMAIER

PH.D. CANDIDATE | CIVIL & ENVIRONMENTAL ENGINEERING

environmental engineering & sciences

1. Where are you from?
I lived in Golden, CO until I was 10, then moved to New Berlin, WI. Both places had a hand in shaping me, so I guess I'm from both places.

2. Where did you get your undergrad degree from and what was your major? Do you have a MS?
I double majored in biology and environmental science at Carthage College in Kenosha, WI. I got my MS in environmental engineering here at Northwestern.

3. What attracted you to engineering?
It's funny because my dad is a structural engineering professor and engineering never appealed to me. I envisioned myself as more of a conservationist/ecologist, doing something wildly exciting like tracking migratory patterns of macro-fauna in remote areas or monitoring coral reef health in coastal environments.

In undergrad, something clicked when I became interested in bacteriophage and microbiomes and how they drive biogeochemical cycles all around us. Like oh, I can engineer these systems too! I was really drawn to the applied and interdisciplinary nature of environmental engineering. Taking fundamental research from across fields of natural science and applying them to solve tangible problems is just, so cool. Now my dad and I have great conversations about engineering principles.

4. What attracted you to pursue a Ph.D. in your specialty area?
I couldn't decide what to study, so the natural direction was to study everything. I feel like you get a taste of that in environmental engineering. You tend to get really focused on a specific system, but environmental systems are complex so you always have to be considering other elements that might be affecting the question you're trying to answer. So, you either study it yourself or collaborate with another expert. I haven't seen the same level of interdisciplinary awareness in other fields, and it makes environmental sciences really appealing to me.

5. How do you explain your thesis research to a non-scientist?
My research looks at viruses that infect bacteria, also known as bacteriophages. Phage can act as natural bacterial control, keeping bacterial populations in check in environmental systems. I'm looking at what types of phages are present in wastewater systems and how we might leverage them to make the bioprocesses we use to clean wastewater more efficient. I get a good mix of molecular biology, microbial ecology, and bioinformatics in my work.

collecting water samples.

6. What attracted you to NU?
I became interested in NU and the CEE department for the Environmental Engineering and Sciences program early during my undergraduate studies. I wasn't always sure that I would pursue a PhD, but I knew if I did, I wanted it to be here. I designed my coursework schedule largely around the requirements for this program. I was really attracted by the natural science focus of the core coursework. A lot of the EE programs I had looked at felt very civil focused, and the NU program felt like a better fit for me. Beyond that, I had attended a few Wildcat football games and really loved the campus. It's hard not to be mesmerized by the lake and city view.

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7. What has been the highlight of your time at NU and CEE?

I've really enjoyed getting to know my cohort and lab mates and watching them grow into thoughtful scientists. I see the reflection of my own growth as a researcher through them too. Interacting with my peers proves to be a highlight of my time here on a daily basis. If I had to pick one big shiny moment though, presenting my work at ASM over the summer was an absolute blast. I got to see my place in the great web of research and hear about some really cool science.

8. What has been the most challenging aspect of your graduate school experience?

The most challenging part of graduate school has been dealing with externalities. The pandemic, crumbling democratic institutions, the accelerating pace of climate change, etc. How is anyone supposed to get any work done around here? Especially when your field specifically focuses on those sorts of issues. I think we all deal with existentialism to a certain degree, but you can't put blinders on when you're studying root causes and solutions to these problems. Often, I just need to recenter and remind myself to focus on the things within my control; the ways I can affect change for the better to those in my immediate gravity, and how can I inject that into my life and my work.

9. Can you tell us about your experience being mentored or mentoring others?

I have gotten lucky with a lot of great mentors along the way. My undergrad was a small liberal arts school, and I had a lot of face time with professors both within my field and outside of it. I'm so grateful for those experiences and how they've shaped me as a researcher. I still have great mentors at NU, but I find myself more and more in a mentorship role, working with undergrads and other Ph.D. students. I catch myself using those skills that I've learned from my mentors. It's a funny feeling, like saying something a parent said to you all the time as a kid and suddenly you see the world from their perspective. I've been reflecting on those relationships a lot, and even with great mentors, also see where I needed more support. I want to be aware of those needs and make sure that I'm passing on the great mentorship that I've received but with my own spin on it.

10. What are your interests or hobbies outside of your research?

I am a bit of a hobby hoarder. I tend to get really interested in a hobby, learn a lot about it, practice it for a little bit then drop it for the next one. It's terrible and I'm a little jealous of those who have mastered a craft or hold deep knowledge on a specific topic and don't get bored with it. I'm currently obsessed with fantasy novels and birdwatching. I've also just ordered a beginner's cross-stitch kit, so we'll see how long that hobby will stick around.