Pratik Poudel is an Environmental Science major and a senior this year at the University of Northern Iowa. Pratik has had an interest in the environment for his entire life.

“Growing up in Nepal, I have always had a keen understanding of environmental resources and stewardship as a pristine environment and mountains are essential for tourism. I’ve also witnessed the steady decline of various environmental factors such as air quality or water quality,” Pratik said. Because of this, he wants to study the environment to help maintain it everywhere in the world. He is doing so today with his undergraduate research.

Pratik is working with Dr. Mohammed Iqbal. Dr. Iqbal is a UNI Geology professor who specializes in Hydrogeology and Environmental Science. Pratik met Dr. Iqbal when he took Introduction to Geology. Introduction to Geology was Pratik’s first environmental science class. He found out that Dr. Iqbal was doing research in Nepal, where Pratik is from. Not only that, but Dr. Iqbal was doing research in the polluted Bagmati river in Pratik’s hometown. Pratik quickly expressed his sincere interest in working on the project.

“Working with Dr. Iqbal is a very rewarding experience. He has enough prior research to give me a clear path forward, but he has been flexible in allowing me to take the project forward based on my own interests and skills,” Pratik said.

The project involves researching the water quality of the Bagmati river in Kathmandu, Nepal. Pratik is working with Dr. Iqbal to track changes over time and over space within the river. For instance, how might the water quality change when it enters the city versus by the time it exits city boundaries.

One of the reasons this project is important is due to Bagmati’s cultural and historical importance. “It is also the primary source of untreated municipal and industrial waste disposal, so the water is not safe for any kind of use, yet a lot of people depend on it daily for washing clothes, washing dishes, etc. People often must forego health concerns out of necessity,” Pratik explained.

Pratik also talked about how their work is revolutionary in the field, “The work Dr. Iqbal let me be a part of is unprecedented in Nepal. No one has really done a combined temporal and spatial study like the one we have, and it has the potential to be one of the many resources the city government uses to develop a long-term, concrete plan to clean up Bagmati river.” Temporal is the measurement of water quality over time, while spatial means measuring the water quality over a distance. Together these two measurements provide the big picture view of water quality for the community.
Pratik got quite a bit out of his undergraduate research experience. Something interesting Pratik learned while working in the field is to prepare for things to go wrong. There were times when his equipment malfunctioned, monsoon rain made certain sites inaccessible, or in one case, a group of aggressive monkeys refused to let him approach his worksite.

“In general, I got amazing experiences that I can talk about,” Pratik said. “Working in the field teaches you among many things, how to deal with situations where things go wrong. I gained a lot of experience writing reports and got an excellent opportunity to work on my Geographic Information Systems (GIS) skills. Cartography is an invaluable skill in a career as an environmental scientist.”

After graduation, Pratik intends to gain work experience with technology in the United States while he figures out what he wants to specialize in for graduate school. He highly recommends that other undergraduate students try to do research—as much as possible.

“Research is an excellent way to apply what you learned in class and put your name out in the scientific domain,” Pratik explained. “You get experience with report writing and presenting, two invaluable skills in any situation. Not to mention, the more research you do, the more you stand out as a candidate for either grad school or employment.”