Handling the Earth with Care

After his awakening at the foot of a tree, Buddha would live and meditate in nature for the rest of his life. He claimed the reasons to be both personal benefit and concern for future generations. The practice of caring for the earth is inherent to the Buddhist religion. The practice is also a reason seniors and cousins Tashi Gurung and Gyaltsø “Abu” Gurung are majoring in environmental science and natural resources respectively.

“Growing up in Mustang, Nepal, my Tibetan Buddhist upbringing taught me that we should take care of the planet,” says Tashi. “Majoring in environmental science heightened my awareness and intensified my understanding of why it is so very important.”

For Abu, the focus is on wildlife and saving the endangered snow leopard, a cat native to the mountain ranges in Central Asia. He had the opportunity last summer to work on greenhouse gas research with Assistant Professor Katy Smith in an area sugar beet field. This research, while not distinctly in his major, gave him the opportunity to work across disciplines.

“I love every professor here,” Abu admits. “They are knowledgeable in their field and are accessible to students.”

Tashi says one of his favorite classes has been introduction to natural resources taught by Associate Professor Phil Baird. “When Phil is teaching, my friend is teaching,” he says. “I can ask any questions I want.”

Both the Gurungs felt the influence of Professor Dan Svedarsky. “I want to be like

When Learning and Research Intersect

It is in the campus DNA. Putting students first has been our focus since our early days as the Northwest School of Agriculture. Assistant Professor Omar Al-Azzam carries on that legacy and finds deep satisfaction in working closely with his software engineering students on research.

Al-Azzam came to the United States from Jordan following the completion of his master’s degree. After working for a couple of years, he found himself yearning to combine teaching with his passion for research. That desire resulted in an application to North Dakota State University (NDSU), Fargo, where he completed his doctorate.

His research background is in bioinformatics and data mining, and he spent the last five years mapping the wheat genome in a cooperative effort with his advisor at NDSU, and colleagues from California-Davis, and Oregon State University. This ongoing research continues as they work on genome and gene discovery with support from the U.S. Department of Agriculture.

The human genome has been fully sequenced and Al-Azzam says that techniques from human genome mapping can be applied to mapping the wheat genome.

Faculty research has significant implications for undergraduates on the Crookston campus because faculty bring research and research techniques directly to the classroom.

“Students form groups to work on a course project worth 25 percent of their grade,” Al-Azzam explains. “In my database management systems class, we develop a system that could work for a real-life problem. Students propose topics and choose a question to solve as a group.”

He has found that meeting bi-weekly with each of the student groups allows him the opportunity to regularly offer feedback and a time for students to ask questions. “I get a progress report from the group, and I help guide the next steps,” he says.

Students have been involved in research outside the classroom with Al-Azzam as well. He and Senior Christopher Walton, a software engineering major from Middle River, Minn., worked on a data mining project together. “I supplied training for Chris and worked closely with him on the functional annotation of genes,” Al-
Azzam shares. “What I want students to experience is how data mining and warehousing can be used to solve problems in any field.”

Al-Azzam currently is involved in an interdisciplinary proposal to research and predict flooding in the Red River Valley. “We would investigate the use of data mining techniques to determine if a flood might take place,” he says. “We will also use the visualization lab on campus to simulate a situation and determine how the data can help in decision making.”

Students will no doubt be involved in this flood prediction research because Al-Azzam recognizes the benefit to them as well as to the work he is interested in.

In turn, graduates will gain valuable research experience and go on to solve the real world problems they care about. Where learning and research intersect, a great education takes place.