

Bridging the Disciplines

Want to create innovative solutions to complex problems in human health?
Start by creating a new model of interdisciplinary research.

UBC's Bridge Program began with a simple premise. Create a new type of researcher – one who works at the intersection of public policy, engineering, and environmental, occupational and public health sciences. The program's innovative research fellowships support graduate students engaged in problem-based cross-disciplinary research aimed at improving human health.

In less than three years, this CIHR-funded program has gained national recognition. **Negar Elmieh**, a doctoral student in Resource Management and Environmental Studies, came to UBC specifically for the Bridge Program. "This was the only interdisciplinary program in Canada I could find that integrated health, policy and engineering."

For **Kay Teschke**, the program's director and a professor in the Department of Health Care & Epidemiology and the School of Occupational & Environmental Hygiene, it was critically important to bring engineering into the health research mix when designing the program. As she points out, many of the most significant advances in human health – from potable water distribution to the development of sanitary sewage systems – are the direct result of engineers, scientists and policymakers working together. "I'm always interested in developing solutions," she says, "and bringing engineering into the equation is certainly one way to do that."

As its name suggests, the Bridge Program creates opportunities for dialogue between the disciplines, particularly through its flagship course, Research Development, which sees students developing, writing and submitting operating grant proposals to regional, national or international granting agencies.

In the opening weeks of the course, faculty members from Bridge-affiliated departments pitch

their research ideas to the students, who then choose the projects they are interested in working on in teams. Once a project is selected, explains Teschke, "the faculty mentor is then committed to helping students recruit other faculty members and guiding the development and writing of the research proposal."

In 2002, the program's first year, students chose a project proposed by John Rowse of the BC Ministry of Health Planning on the impact of water quality on gastrointestinal illness. *Continued on page 12*

The Bridge Program is funded by the Michael Smith Foundation for Health Research and a six-year grant from the CIHR Strategic Training Initiative in Health Research.

The Bridge Program connects researchers from the following UBC academic units:

- Department of Civil Engineering
- Department of Chemical and Biological Engineering
- Department of Health Care and Epidemiology
- Department of Mechanical Engineering
- Department of Mining Engineering
- Institute for Health Promotion Research
- Institute for Resources, Environment and Sustainability
- School of Occupational and Environmental Hygiene
- UBC Centre for Disease Control

Students enrolled in the Bridge Program must complete two required courses and write a thesis that integrates the three focus areas of the program. They are also expected to complete internships of three to eight months' duration at non-UBC sites.

UBC STUDENTS AT WORK IN THE CLASSROOM (AT RIGHT), AND IN THE FIELD (ABOVE).



Bridging the Disciplines – Continued from page 03

Five UBC academics – who had never worked together before – were recruited to help out. The resulting proposal was accepted for funding by the CIHR, which was a remarkable success for the fledgling program. **Negar Elmieh** is now one of two research coordinators for the *Langley Water and Health Study*.

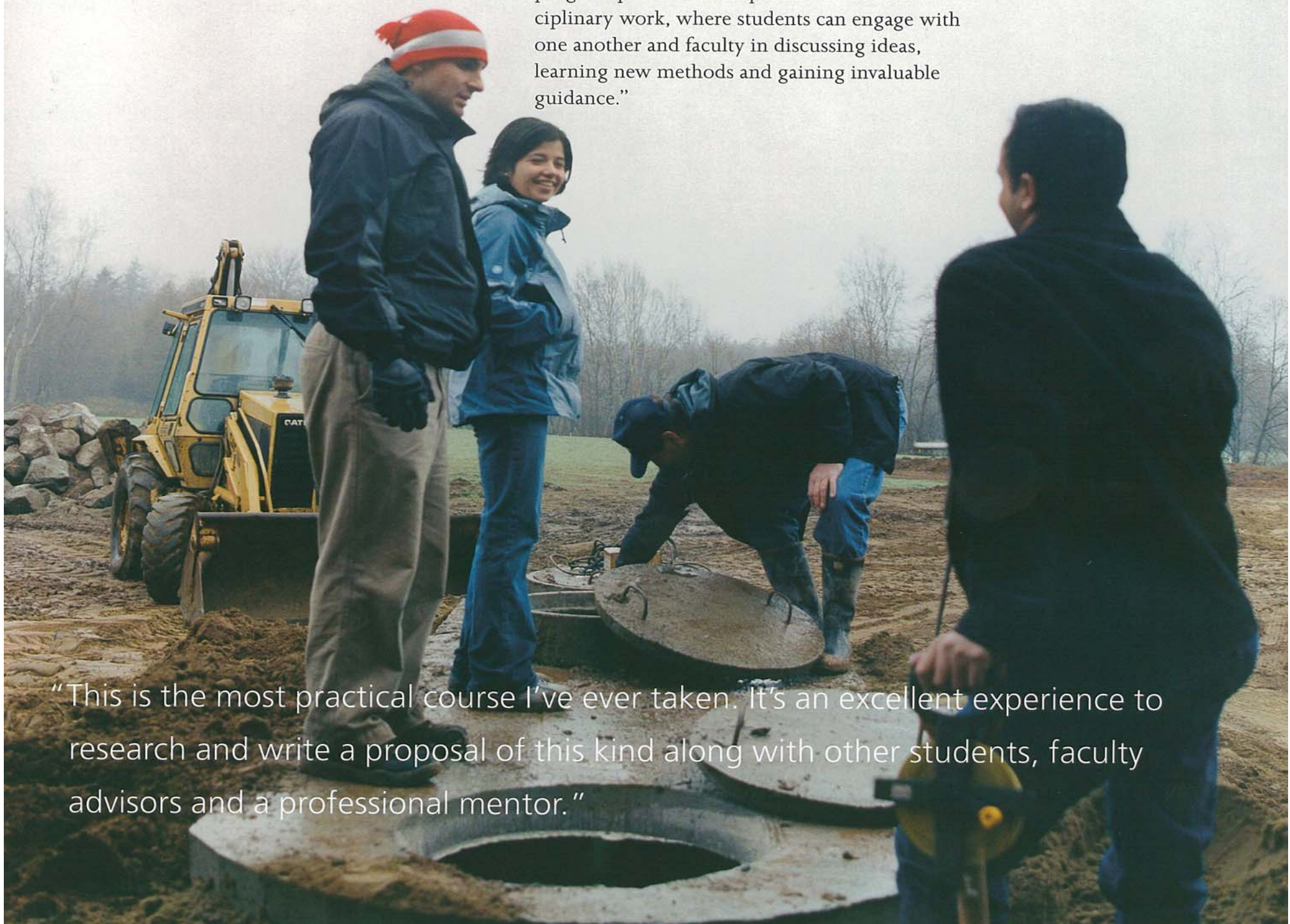
Subsequent classes have pursued equally compelling projects. A team of students submitted a proposal in December 2004 to the Vancouver Foundation on the knowledge and risk perception of emerging diseases in BC, and a second group is submitting a proposal to the CIHR on the socio-economic determinants of health in mining communities.

Doctoral student **Glenys Webster** is currently enrolled in the course, and her team is developing a proposal on improving the effectiveness of pathogen removal and measurement in large-scale composting processes – a study particularly relevant in light of the 2004 avian flu epidemic in BC that resulted in the composting of many of the 17-19 million birds that were killed. “This project – and the Bridge Program

in general – are enabling me to make links between my technical background in environmental toxicology and the areas of human health and policy,” she says. “This is the most practical course I’ve ever taken. It’s an excellent experience to research and write a proposal of this kind along with other students, faculty advisors and a professional mentor.”

While the program offers students practical experience in working on a research proposal, it has added benefits in fostering collaboration between academics in medicine, engineering and grad studies. “Each researcher is at the centre of a web of connection that breaks and forms again and again,” says Teschke. “Our course ensures that the web crosses faculties and departments.”

The program also has the potential to improve health care policy in Canada. By bringing together multidisciplinary teams of students, academics and external mentors, it provides a unique training ground for a new generation of researchers tackling interrelated health, engineering and policy issues. “In a campus that is divided by disciplines,” says Elmieh, “this program provides a unique forum for interdisciplinary work, where students can engage with one another and faculty in discussing ideas, learning new methods and gaining invaluable guidance.”



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