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### **Student hopes to heal by the numbers**

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Byline: BY JOHN MINER

When Rolina van Gaalen starts a course next week in Botswana on how to control the spread of infectious diseases, she won't be injecting drugs and vaccines.

Instead, the University of Western Ontario graduate student will learn to fight malaria and tuberculosis with mathematical equations and formulas.

"Whenever I introduce myself, if someone asks what I am doing and I say I am in biomath, it's like, 'Wow, weird.' No one knows it is possible. I didn't know it was possible when I first started math," said van Gaalen, one of 25 students from Canada and Africa picked to attend the summer school in southern Africa organized by **MITACS**, a national math research network that tries to solve problems by bringing together researchers, companies and governments.

Van Gaalen said mathematicians help fight diseases by building mathematical models.

"You need to do your research. You need to find out specifically what happens in biology. You need to find information from the clinical trials that have been done before," she said.

Using equations, it's then possible to determine where governments should put their resources or how many doctors might be needed in certain specialties.

"We can glean where a population is going in the future," van Gaalen said. "In Canada we now have this population of older people -- the baby boomers are aging. What kind of doctors will we need? Those are a bunch of different ways we can use math."

Interested in math since elementary school, van Gaalen said she became fascinated with its medical application when she took a math biology course in her third year at Western.

Her particular interest is HIV/AIDS.

"I have always been fascinated by Africa and AIDS and HIV are rampant in Africa," she said.

Partly financed by Industry Canada, the course is led by two of Canada's leading mathematicians, Abba Gumel of the University of Manitoba and Troy Day of Queen's University.

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- photo
- UWO student Rolina van Gaalen selected to study in Botswana.

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