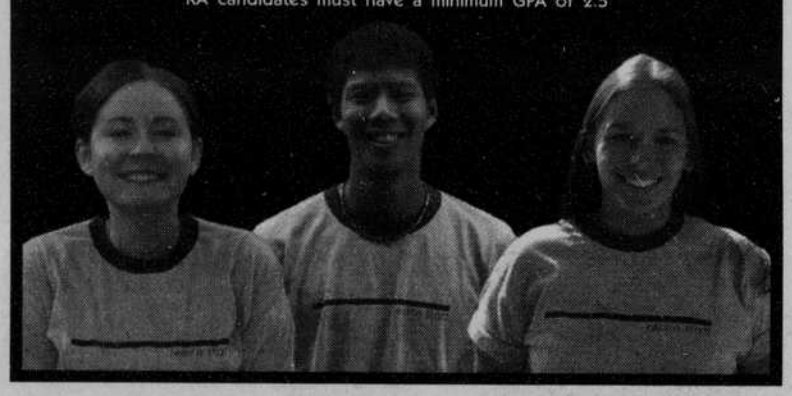

Students study avalanches with realistic experiments

FIG science students use hands-on examples to bring learning to life in 'Chemistry of Skiing'

By Caron Alarab
News Reporter

When freshman Marnee Mellott arrived at the last day of her "Chemistry of Skiing" class in December, she didn't expect to have the best avalanche experiment compared to her fellow students. She just knew she would do her best to pack down the fake snow.

After spending nine weeks studying the chemistry of warm clothing and learning how to make snowflakes, Mellott said she is glad she enrolled in the specialized freshman interest group last fall term.

"It sounded interesting compared to all the other FIGs," Mellott said. "I love to ski as well."

Mellott is one of the 21 freshmen who learned about the chemistry of skiing through real-life models, experiments and students projects in the fall-term FIG. From investigating materials used to manufacture skis to exploring the chemical properties of water, the course covers a wide range of topics related to the role of the chemist in the skiing industry.

"I would love to have more of this hands-on learning in a lot of other FIGs," FIG Program Director Marilyn Linton said. "It makes science come alive."

In the avalanche experiment, the students worked with nine different panels, each designed from smooth acetate, burlap and rocky surfaces to imitate real terrain. The students then used a combination of sugar, flour and potato flakes as three separate layers of snow, which they packed down on the panels.

The purpose of the experiment is to reveal layers when the panels are tilted. According to the class instructors, a successful avalanche falls in layers instead of all at once, making the terrain safe for skiers.

During the first panel experiment, the students smiled and clapped giddily as fracture lines and layers emerged with each degree tilted.

Senior instructor Julie Haack, one of the class's two teachers, said the smoothest surface is always the first to give way in this experiment.

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>
> **Jim Hutchison**
> Chemistry Associate Professor

"Acetate would be the equivalent of smooth granite while burlap represents the gritty, rough rock surface," she said.

In the second panel experiment, the top layer of snow was still intact at a 55-degree angle before it came crashing down. As the panel rose a few more degrees, the two other layers slipped. A 2-inch-tall plastic skier stood strong on the panel as the equivalent of multiple tons of real snow fell on him and enveloped his friends.

"So the safest way (in real life) is to be as tall as a tree and to be glued down," one student said jokingly.

Mellott kept packing down her snow as other students tried lifting the newly packed third panel from a different angle. All three layers on the third panel cracked and fell together with lightly set snow.

When it was her turn, Mellott slowly lifted the panel and the smooth acetate surface slipped to reveal a near-perfect layer at approximately 50 degrees. The class members held their breath as the panel inched to 55 degrees, 60 degrees and finally 65 degrees before the second layer slouched down.

"Oh, look at the layers," chemistry Associate Professor Jim Hutchison said with excitement. "That's cool."

At approximately 85 degrees, the third and final layer of snow broke from the burlap and slid to the ground, making Mellott's results the most successful and the most realistic.

If her panel had been a real mountain, it would have been the safest place to ski because the avalanche came down in stages instead of all at once.

"It turned out well because it was a more realistic depiction," she said with a modest smile. "I packed (the snow) down a lot."

Hutchison, the class's co-instructor, said he has been thrilled to blend student interests with the science they learned in the classroom.

"It's been fantastic," he said. "It's also really neat to have a theme to make the class more interesting."

Although Hutchison has enjoyed using real-life examples in science, he said it's not always easy.

"I would really advocate moving more of these real-life examples into the classroom," he said. "But it's a lot of work and it takes a lot of time the first time."

Linton said she was glad to see the students get the most out of their FIG experience.

"They're having fun and they're learning chemistry," she said. "That's the ideal."

Contact the business/science/technology reporter at caronalarab@dailyemerald.com.

CAMPUS BUZZ

Monday

Art exhibition, 7 a.m.-11:30 p.m., Adell McMillan Art Gallery. "No Boundaries 2004" is the 14th annual regional traveling exhibit produced by VSA Arts of Washington, a nonprofit group dedicated to providing arts opportunities by, for and with people with disabilities. Works on display include photos, paintings, watercolors, ceramics, linoleum prints, digital designs, paper cutting and mixed media. Exhibition runs through Jan. 29.