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While trying to enjoy a succulent slice of watermelon on lower campus, Aly Jivraj (U3 International Development Studies) is accosted by an escapee of Granby Zoo. Actually, that's Sylvia Boss (U4 Law) of Gorilla Composting in the monkey suit welcoming people to McGill by handing out delicious free grub and promoting composting.

### Planning for uncertainty: the math of mining

#### **BRONWYN CHESTER**

Mining is one of the most uncertain industries around. Not only is it impossible to know the volume of a metal or mineral in a particular ore body, it's also impossible to predict the market value of the product once you've gone to all the trouble and expense to extract it.

Most mining companies deal with this double whammy of uncertainty by using mathematical models that make no allowances for guesswork, explained Roussos Dimitrakopoulos from his office next to the Stochastic Mine Planning Laboratory. The professor of mining engineering and Canada Research Chair in Sustainable Mineral Resource Development and Optimization Under Uncertainty is a world leader in stochastics, the science of uncertainty. "I like the comparison to weather prediction that a mining engineer from [mining company] Rio Tinto once used," said Dimitrakopoulos, "Imagine what our lives would be like if the prediction of the weather one month from now was determined by looking out the window today for one second. That's what it's like in mining." Dimitrakopoulos and his group of researchers and collaborators from industry work to incorporate uncertainty into the mathematical models used by mining companies to plan their operations. "We have been able to establish the interaction between uncertainty [in the ore body and in the market] and in discounting, or the

devaluing of money over time."

And the results are promising: In studies he conducted while working with BHP Billiton, the Australia-based mining giant, Dimitrakopoulos' approach resulted in a five- to 20-percent increase in the value of mining operations compared to conventional methods. His success prompted BHP Billiton to set up an international research lab funded, in part, by mining companies, to further his stochastic modelling and enhance McGill's Department of Mining Engineering.

BHP Billiton put up \$800,000 to be used over five years, matched by a Collaborative Research and Development grant from the Natural Sciences and Engineering Research Council of Canada, for a total of \$1.6 million. Dimitrakopoulos officially launches the Stochastic Mine Planning lab on September 8, and the guests will include representatives of the lab's eight partners: BHP Billiton, the London-based Rio Tinto, Canadian companies INCO and Barrick Gold, the American Newmont Gold, the South African AngloGold Ashanti and De Beers companies and the Brazilian CVRD. What sets Dimitrakopoulos' lab apart from other engineering labs at McGill is that the companies involved have agreed to give \$50,000 per annum for five years as well as provide the lab with problems and feedback on the proposed solutions, a relationship that Dimitrakopoulos values.

field," said Dimitrakopoulos. "This lab isn't only about academic papers."

One of the partner companies, De Beers Canada, part of the international diamond-mining operation, has worked with Dimitrakopoulos. Malcolm Thurston, vice-president, Mineral Resource Management, De Beers Canada, said that, "One of the major problems we face is to optimize exploitation of the ore body. This implies an understanding of what run-of-mine material must be removed in space and time to get the best return possible for the project. This must be balanced against the risk imposed with respect to people, mining equipment and the natural resource itself. The laboratory at McGill is making a contribution in this area and early results have been implemented with success at a specific De Beers operation in South Africa."

# From classroom to cleats

McGill produces record number of All-Canadians

#### NEALE MCDEVITT

Long renowned for their lab and classroom prowess, McGill students can also flex their muscles with the best of them on the field, in the pool and on the ice. The Canadian Interuniversity Sport (CIS) body recently announced that in 2005-06, McGill established a national record with 147 All-Canadian athletes. Under CIS guidelines, only full-time students achieving a minimum 80 percent average in their studies while competing in CIS-sanctioned sports qualify for the lofty label.

While the elite athlete as super student may seem an anomaly to outsiders, most people involved in athletics see it as quite the opposite. Interim Athletics Director Derek Drummond pointed to a recent study conducted at Canadian universities that suggested students who compete in sports have significantly higher GPAs than their more sedentary classmates. "This is proof positive that students who lead more structured lives do better," he said. "It also proves that smart people can run and jump," Drummond added with a chuckle.

With 17 All-Canadian honourees on last year's squad, the rugby Martlets claim bragging rights as McGill's smartest team. This is doubly impressive because the team won its eighth consecutive Quebec university rugby title last year.

Cindy Pressé, an All-Canadian second row forward on the Martlets rugby team and third-year phys ed student believes that there is no secret to the team's dual successes. "Everybody works hard," she said. "The key is getting your school work done first."

Philippe Eullaffroy, the head coach of the soccer Redmen (a team that established its own record last year with 12 All-Canadians), sits down with freshmen before each semester and asks them if they are ready to tackle the demands of being student-athletes. From the beginning of class to the end of soccer season in mid-November, that workload includes soccer every day of the week, including practices and games. "Players become extremely efficient at managing their time," said Eullaffroy. On road trips, books are packed alongside cleats so that time in the bus can be spent studying. By faculty breakdown, Science outdistanced Arts, its closest competitor, 57 honourees to 23. When told of his faculty's showing, Science Dean Martin Grant remained magnanimous. "In line with its reputation as the most courteous faculty in McGill, the Faculty of Science would like to congratulate the other faculties for their tremendous achievements," he said, tongue firmly in cheek. "However, I would like to offer my personal mentorship to the deans of other faculties in the McGill teacher-scholar model." And, as if the battle of the sexes didn't need any more ammunition, the university's women All-Canadians outnumbered their male counterparts 83 to 64. When told of the difference, Drummond laughed. "Hey, we've always known they're smarter than us."

"I can't be a good engineer or scientist without working with the people in the

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#### "For our generation it is not the paycheck at the end of the day but the company culture that is really important."

LINDSAY HO, Management Undergraduate Society president, in conversation with Karl Moore

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#### CENTREPIECE /



It is clear that Irish poet William Allingham, who penned the line "Autumn's the mellow time," had never been to McGill in the fall. The beginning of each fall semester is marked by a whirlwind of activities kicking off another academic year for students, faculty and staff. Frosh week, post-grad Welcome Week and new faculty orientation are just some of the events that have the campus hopping before people buckle down and get serious. As the following photos show, maybe John Donne had it right when he wrote "No spring, no summer beauty hath such grace / As I have seen in one autumnal face."

### **Stochastic Mine lab**



Roussos Dimitrakopoulos and Dean Christophe Pierre are proud to launch the Stochastic Mine Planning lab.

#### **MINING** continued

Thurston also sees the lab as a place for "shaping and training the leaders of tomorrow in this field." At the moment, those leaders of tomorrow now working in the lab include three research associates, seven graduate students and two graduate students shared with other departments. Dean of the Faculty of Engineering Christophe Pierre is particularly pleased by the multidisciplinary and international aspects of the lab. He noted that other McGill professors collaborating with the lab come from the fields of electrical and computer engineering as well as from math and management. External collaborators include a specialist in production scheduling from the Colorado School of Mines, a petroleum engineer from Stanford University and a researcher from the Paris School of Mines.

Alexandra Preimess, from the Career and Placement Service office of Student Services, gets a big hug from the McGill mascot at the Student Life Street Festival, part of Discover McGill, the campus-wide orientation day, August 30. The First-Year Office and the Students' Society of McGill University (SSMU) organized the event.



**Kirsten Ewan** (U1Management) and Cassy Corothers (U1Arts) put up their dukes on lower campus for frosh activities, September 1.

## **New faces** Start of the fall semester going places



Principal Heather Munroe-Blum, wearing her Ask Me! — J'ai la réponse t-shirt, meets some new McGill students on August 30. Keep an eye out for volunteers sporting the bright red t-shirts, and pose them a challenging question.



"This lab fits well with the priorities of the faculty, which include strengthening research programs with industry, being international in scope and providing research opportunities for students," said Pierre.

"It's rare for a university lab to have such formally organized partnerships with industry," he continued. "This is a model we would like to see become more prevalent, but that only happens when you've earned the respect of an entire industry. The very existence of this lab is a testament to Roussos being a global leader in this field."

New professor Desmond Tsang, of the Desautels Faculty of Management, checks out the composter demonstrated by Kathleen Ng, of the Environmental Safety Office. Ng was just one of the many university staff on hand to welcome professors at the New Faculty Orientation Services Fair, August 29.

Hot Montreal band Kalmunity grooves at the Student Life Street Festival.

