

## 2011 Dr. Karl C. Ivarson Scholarships (Soils)

Melissa Arcand and Gregory Piorkowski were the recipients of the 2011 Dr. Karl C. Ivarson Scholarship. Each received a \$3,000 award.



**Melissa Arcand** is working on her PhD in the Department of Soil Science at the University of Saskatchewan. Through her research, Ms. Arcand explores fundamental principles in soil science in order to understand the influence of agricultural management practices on the environment. She is part of a research group that is examining the effects on soil N cycling of including pulse crops in crop rotations common to the Canadian prairies. Pulse crops can play an integral role in reducing the environmental impacts of traditional cereal-based crop rotations in the prairies by reducing the reliance on N fertilizers. Ms. Arcand sees a future as a research scientist working on questions related to soil nutrient cycling and plant-soil-microbial interactions within an agricultural context.



**Gregory Piorkowski** is a PhD student in Biological Engineering at Dalhousie University. His research addresses the adequacy of *E. coli* as a fecal pathogen indicator in agricultural watersheds given recent evidence that this species is capable of adapting to, and growing naturally within, soil and sediment environments. Incorporating a microbial source tracking design, he has been genetically classifying *E. coli* strains into source libraries from primary (septic systems and livestock manure storage) and environmental (streambed sediment, agricultural soil and tile drains) sources and comparing waterborne *E. coli* strains against these libraries to determine their most likely origin. His secondary hypotheses are focused on the influence of soil type and manure loading rate on the naturalization potential, differential survival and transport of manure-borne *E. coli* strains, both benign and pathogenic, within the study watershed. Mr. Piorkowski looks forward to a research career in environmental microbiology.