

The Bridge Program: Teaching Modules Summary Page

Topic: “It is only over when it is done: mine reclamation and closure planning”

Bridge Students: Silvana Costa, Jennifer Hinton and Carol Odell

Proposed Faculty Advisors: Marcello Veiga and Malcolm Scoble

Background:

Mining is a temporary use of land. Historically, the industry has left a legacy of environmental degradation and social consequences, thereby generating risks to human health and wellbeing. In Canada and abroad, these practices are no longer acceptable. At the time of mine closure, the mine site and any other areas impacted by the operation must be reclaimed to protect public health and safety, prevent or mitigate environmental degradation resulting from the mining activity and ensure that the land can be returned to its original or alternative acceptable use. Preparing an acceptable closure plan prior to the development of a mine is referred to as “designing for closure”. For mining operations in Canada, reclamation and closure design are an integral part of planning and development and ideally includes the input and consideration of affected communities.

This course will address the regulatory, socio-economic and technical aspects of aspects of reclamation in the Canadian context. Best practices in Canada will be illustrated through case studies.

Who should take this course? Undergraduate students from Mining, Geological and Civil Engineering, and Earth and Ocean Sciences.

Why should you take this course? To enhance understanding of:

- what reclamation is and how it can most effectively be conducted;
- the linkages between technical aspects of mine closure and environmental and human health risks; and
- the social, political and financial implications of mine closure.

Module Duration: ~ 3 weeks (3 hrs per week)

Module Contents

Week One:

- Introduction and Definitions
- Common mine waste products and their potential impacts on environmental and human health
- Elements of reclamation techniques: physical stability, chemical stability, land use, aesthetics, post closure activities.

In class exercise: Scenario presented to break-out groups. Identifying key reclamation issues.

Week Two:

- Post closure activities: walk away, passive care and active care options
- Policy and regulatory aspects in Canada
- Financial security for Reclamation: reclamation bonds and insurance

In class exercise: Reclamation bonding in BC. Calculating costs using BC criteria.

Week Three:

- Developing a Mine Closure and Reclamation Plan
- Community participation in reclamation: tools and approaches
- Case studies

In class exercise: Scenario. Multi-stakeholder group exercise – evaluating the options.

Delivery Mode: Lectures, In-class exercises (Problem Based Learning).

Evaluation:

- Group project (Potentially on “Developing a mine closure and reclamation plan”)
- Weekly assignments (internet based research on best practices.
- Some Participation marks.