### Background

The NRS faculty held a series of meetings from Jan-April 2015 and a 1-day retreat to revise and expand learning outcomes. The goal was to revisit existing learning outcomes and explore new learning outcomes that would address problem solving, multidisciplinary perspectives, ethical principles and global awareness.

We chose to use two core courses taught by Prof. Mark Stolt for our sampling decisions. NRS 450, *Soil Conservation and Land use* and NRS 471, *Soil Morphology and Mapping*. The artefacts came from student assignment report of the soil mapping project. Activities were evaluated for exhibiting exemplary, proficient or beginner proficiency. NRS 450: 7 activities x 26 students; NRS 471: 8 activities x 12 students).

### Approach

Our assessment focused on mapping landscape features and interpreting spatial patterns with appropriate sampling techniques to draw inferences about soil-environmental perspectives of land use planning and soil mapping. We used a rubric developed in consultation with NRS faculty that defines the level of knowledge and skill required to be considered “exemplary”, “proficient” and “beginner”, for each of the sub-components of the methods in inquiry. Each activity was evaluated against the rubric.

**Students are required to:**

- Map landscape features and interpret spatial patterns
- Formulate hypotheses, design experiments, interpret results
- Identify and critique assumptions underlying model/hypothesis
- Know appropriate sampling techniques to draw inferences about plant, animal, and microbial populations and communities, edaphic factors, and ecosystem processes
- Recognize limitations of environmental science and management methods

### Results

73% of students in NRS 450 and 100% in NRS 471 achieved proficient or exemplary; Combined, ~82% of students achieved the outcome. Overall, our students met the expectation of 70% Proficient or Exemplary.

NRS 471 students met our expectations, demonstrating that students are successfully building competencies during previous courses. There was an assumption of equal understanding by all group members.

The new learning outcomes address problem solving, multidisciplinary perspectives, ethical principles, and global awareness. No specific recommendations for curricular change we made based on this assessment.