

Rationale included with lab science learning outcomes materials approved at April 2015 faculty meeting:

Disciplinary interpretations of the learning outcomes will vary according to differences in intellectual traditions and practical styles of the natural sciences. The following explanations attempt to describe some of the elements that may be present in each goal:

Explanation of learning goal 1: *Students will be able to demonstrate the ability to use scientific methods as a way of understanding the world.* Scientific methods involve a number of skills including the ability to:

- ask useful questions
- apply inductive and deductive reasoning to reproducibly collect and evaluate appropriate information
- use experimental, comparative or discovery-based approaches in field or laboratory investigations
- communicate the processes and results effectively to an appropriate audience

Explanation of learning goal 2: *Students will be able to demonstrate knowledge of content and principles within the natural sciences.*

This goal refers to a student's mastery of the technical content of the course and ability to solve problems related to concepts in the course. It may also include learning how to use data with integrity.

Explanation of learning goal 3: *Students should be able to demonstrate the ability to critically evaluate claims from a scientific perspective.* Evaluating scientific claims can include the following skills:

- articulate the scopes, limitations, and ethics of science in a particular context
- understand the nature of scientific theories, how they develop as consensus and differ from personal or cultural beliefs
- distinguish credible from non-credible sources
- distinguish science from pseudoscience