

Example Learning Outcomes¹

The following example of learning outcomes was adapted with the most modest of modifications from *Reaching All Students* (2007, p. 5). Changes include

- substituting the term outcomes for objectives
- adding italics to highlight the importance of active verbs in learning outcomes
- replacing passive verbs with active verbs in a few places
- amending the organization so that all statements begin with verbs linked to the heading phrase

All credit belongs to the authors; see the footnoted reference. The excellent resource from which this was excerpted can be found in its entirety at <http://www.cirtl.net/publications.html>. We encourage you to review it.

Sample Course Learning Outcomes: Organic Chemistry

This course will provide an audience of junior and senior students majoring in chemistry or the allied chemical sciences with a foundation in the theoretical principles and descriptive chemistry of the elements. The goal is to introduce the concepts of symmetry and their application to molecular orbital theory, and to use this framework to understand the chemistry of the elements with a focus on the transition elements.

By the end of this course, it is expected that every student will be able to

1. *determine* the point-group symmetry of a molecule and *use* the point-group symmetry to *deduce* select spectroscopic properties.
2. *derive* a molecular orbital diagram for a molecule in an ideal geometry and *use* the diagram to *aid in prediction* of chemical behavior.
3. *demonstrate* a basic knowledge of the descriptive chemistry of the element families and *show* familiarity with literature resources that can provide further information.
4. *predict* the chemical behavior of significant classes of inorganic molecules, including transition metal coordination compounds and organometallic compounds.
5. *propose* several plausible reaction mechanisms for a given chemical transformation, *derive* rate laws for these mechanisms, and *interpret* experimental kinetic data to *provide support for or against* a given mechanism.
6. *access* the chemical literature to find specific chemical information.

¹ Sellers, S.L., J. Roberts, L. Giovanetto, K. Friedrich, C. Hammagran. 2007. *Reaching All Students: A resource for teaching in science, technology, engineering and mathematics*. Second Edition. Center for Integration of Research, Teaching and Learning. Madison, Wisconsin. <http://www.cirtl.net/publications.html>.