

## **LEARNING OUTCOMES**

**Learning Outcomes:** What students will know and be able to do as a result of engaging in the learning process. Learning outcomes represent statements of achievement expressed from the learner's perspective: At the end of the course, learners will know... and be able to do...

### **Terms/Clarification/Examples**

#### **Program Learning Outcomes:**

Competencies (knowledge, skills, values) achievable after completion of an entire program of study. There may be 5-12 program learning outcomes.

Upon successful completion of the program, students will be able to.....

Examples:

1. Materials Engineering: Characterize and select materials for design by evaluating the linkages between material properties, microstructures and processing.
2. Nursing: Establish therapeutic partnerships with clients to enhance health and healing and communicate effectively in a variety of media.
3. Biology: Evaluate and discuss contemporary social and ethical issues related to biology and medicine.
4. Biology: Appreciate science as an integral part of society and everyday life.
5. Psychology: Recognize and articulate the foundational assumptions, central ideas and dominant criticisms of the psychoanalytic, Gestalt, behaviorist, humanistic and cognitive approaches to psychology.
6. Chemistry : Demonstrate skills in the evaluation, interpretation and synthesis of chemical information and data
7. Management: Demonstrate interpersonal skills relating to the ability to interact with other people and to engage in teamwork
8. Computer Science: Demonstrate problem-solving skills relating to qualitative and quantitative information
9. Fine Arts: Demonstrate the ability to interpret works of art by analyzing appropriate social, cultural, psychological, and environmental aspects of the works
10. Sociology: Describe various social structures in societies and methods and degrees of social stratification.
11. English: Read a variety of texts critically and proficiently to demonstrate in writing or speech the comprehension, analysis, and interpretation of those texts;
12. History: Demonstrate comprehension of basic historical developments in a variety of civilizations.
13. Anthropology: Demonstrate knowledge of the major figures and debates that have shaped the discipline from its development in the late 19th century through the present.

**Course Learning Outcomes:**

Knowledge, skills, values gained through course completion.

Examples:

1. 1<sup>st</sup> yr Geoscience Lab: Make interpretations and draw conclusions about Earth systems using observations and analyses.
2. Introductory Minerals: After this course, students will use observations about minerals and rocks to infer geological processes and economic potential.
3. Nursing Clinical: The student is able to perform a comprehensive history and physical examination of patients in the outpatient setting and the general medical wards, excluding critical care settings.
4. Sociology: By the end of this course, students will be able to identify and develop data collection instruments and measures for planning and conducting sociological research.
5. Economics: Make pricing decisions using relevant cost and profitability factor
6. Drama: Explain the theoretical basis of various dramatic genres and illustrate them with examples from plays of different eras.
7. Philosophy: Develop relevant examples and to express the significance of philosophical questions.

**Unit/Topic/Module/Activity Outcomes:** Knowledge, skills, values obtained during completion of a unit/topic/module (could last one hour or 3 weeks).

Examples:

1. 1<sup>st</sup> yr Geoscience Lab: Approximate the location of an earthquake using seismograph data provided, and consider possible errors.
2. Geology: Describe the characteristics of the three main types of geologic faults (dip-slip, transform, and oblique) and explain the different types of motion associated with each.

**Class Session/Online Session Learning Outcomes:** Specific competencies (knowledge, skills, values) gained during one meeting (online or face to face).

Examples:

1. At the end of this workshop, you will be able to:
  - a. Describe what is meant by the term Learning Outcome.
  - b. Discuss Bloom's Taxonomy of Educational Objectives.
  - c. Apply Bloom's Taxonomy to help you to write learning outcomes.
  - d. Design an aligned Learning Outcomes/ Assessment plan for your course.
  - e. Recognize the advantages of Learning Outcomes.
  - f. Assess the problems created by poorly written Learning Outcomes.

## Learning Outcomes:

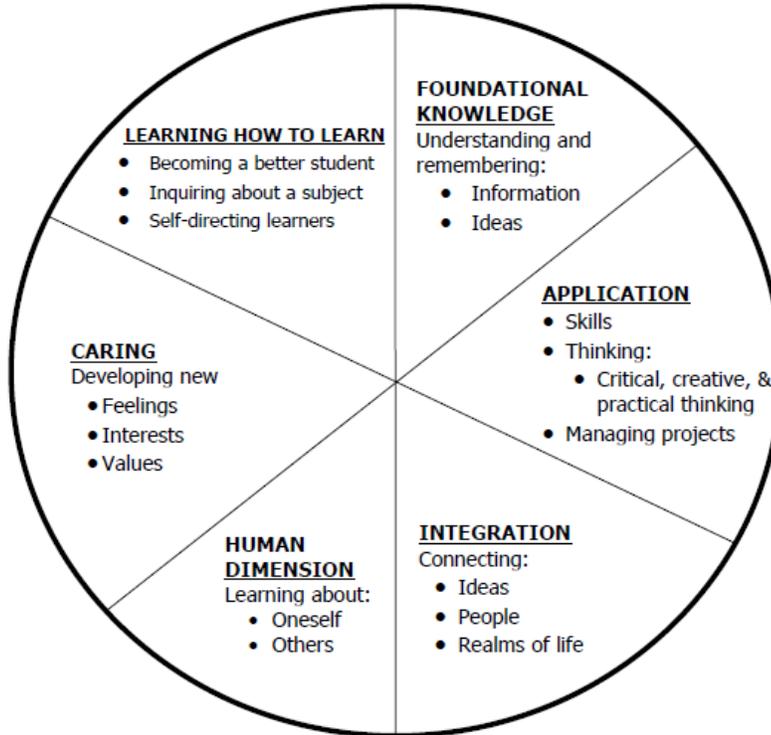
- Identify specifically what should be learned
- Serve as guidelines for content, instruction & assessment
- Must be achievable and measurable
- Should connect directly to the assessment criteria that are used to judge achievement
- Focus on learning rather than teaching
- Should be shared with the learner so that expectations are transparent
- Should reflect 3 domains/6 significant learning categories
  1. Cognitive (knowledge and intellectual skills with an emphasis on knowing, conceptualizing, comprehending, applying, synthesizing and evaluating)
  2. Affective (changes in interests, attitudes, values)
  3. Psychomotor (manipulative and motor skills)

	Learning Outcome	Analysis
Option 1: Not an Outcome	Be given opportunities to learn effective communication skills	Describes program content, not the attributes of successful students
Option 2: Vague	Have a deeper appreciation for good communication practices	Does not start with an action verb or define the level of learning
Option 3: Less vague	Understand principles of effective communication	Starts with an action verb, but does not define the level of learning; subject of learning is still too vague for assessment
Option 4: Specific	Communicate effectively in a professional environment through technical reports and presentations	Starts with an action verb that defines the level of learning; provides context to ensure the outcome is specific and measurable

# Fink's Taxonomy of Significant Learning

Figure 1

## A TAXONOMY OF SIGNIFICANT LEARNING



### Human Dimension:

This can be expressed in the classroom by the following:

TSWBAT..

1. Demonstrate effective team work skills
2. Identify their areas of strength and weakness in university study
3. Compare and contrast 5 cultural groups that live in Canada.
4. Identify factors that inhibit the economic development of 3<sup>rd</sup> world countries.

This dimension should be evident in all curriculum areas, history, sociology, anthropology for example when you are learning about other cultures and inevitably comparing them to one's own culture. Psychology is an area where this dimension is evident in learning about oneself and others. Another very common application is through developing team work skills and collaborative project work in the classroom.

### **Caring:**

This can be expressed in the classroom by the following:

TSWBAT....

1. Defend both sides of the abortion dispute
2. Describe the effects of pollution on water supply.

Most often this dimension has to do with environmental issues, sustainability and moral dilemmas across all disciplines. It will be more prominent in health care studies and education but should be evident across the curriculum in various ways.

### **How do I write Learning Outcomes?**

Bloom's Taxonomy of Educational Objectives is a great resource and starting point for writing Learning Outcomes. The Taxonomy consists of a hierarchy of increasingly complex processes which we want our students to acquire. The taxonomy provides a structure for learning outcomes.

#### **Use a standard beginning like:**

“Upon successful completion of this module, the student will be able to ....”

### **Bloom's Taxonomy:**

**Knowledge:** Collect, describe, define, examine, find, label, list, recall

Examples:

List the criteria to be taken into account when caring for a patient with tuberculosis.

Define what behaviours constitute unprofessional practice in the solicitor-client relationship.

**Comprehend:** classify, describe, discuss, explain, locate, recognize, report, translate

Examples:

Discuss the limitation of the Bohr model

Explain the social, economic and political effects of World War 1 on the post-war world.

**Application:** apply, demonstrate, illustrate, interpret, operate, solve

Examples:

Apply knowledge of infection control in the maintenance of patient care facilities.

**Analysis:** analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, test

Examples:

Analyze the relationship between \_\_\_+\_\_\_.

Calculate gradient from maps in m, km, %, and ratio.

Compare the classroom practice of a newly qualified teacher with that of a teacher of 20 years teaching experience.

Differentiate between civil and criminal law.

**Synthesis:** arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose

Examples:

Construct a timeline of significant events in the history of Australia in the 19<sup>th</sup> century.

Propose solutions to complex energy management problems both verbally and in writing.

Organize a patient education program.

**Evaluation:** argue, assess, choose, critique, defend, estimate, evaluate, judge, predict, rate, select, support

Examples:

Assess the importance of key participants in bringing about change in Irish history.

Evaluate marketing strategies for different electronic business models.

Predict the effect of change in temperature on the position of equilibrium.

Predict the genotype of cells that undergo meiosis and mitosis.

### **Checklist for writing Learning Outcomes:**

1. Have I begun each outcome with an active verb?
2. Have I avoided terms like understand, know, learn...?
3. Have I included learning outcomes across the range of levels of Bloom's Taxonomy?
4. Are the Learning Outcomes observable and measurable?
5. Do all the Learning Outcomes fit within the aims and content of the module?

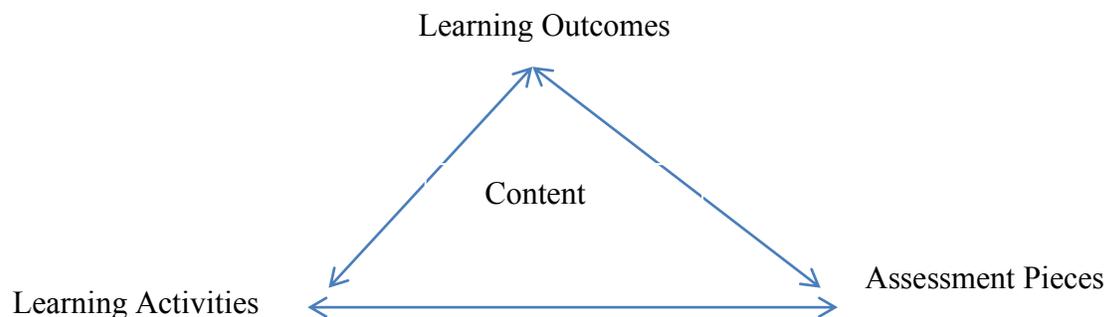
### Reflective Questions When Designing Your Learning Outcomes:

1. What is it that you want students to know and be able to do?
2. What do you want the students to have at the end of the course?
  - a. Breadth (cover all material, remember facts, list answers, follow direction)
  - b. Depth (develop critical thinking skills, ability to research information, apply analysis to situations, develop process)
3. What would distinguish students who have taken this course from students who have not?

### How do I link Learning Outcomes to Teaching and Assessment?

Learning Outcomes should be aligned with your assessment pieces and learning activities.

Once you have identified your learning outcomes you can identify your assessment pieces (how the achievement of those L.O.'s will be measured) and then choose learning activities that will assist/support the students in successfully achieving those learning outcomes.



### **Alignment is when the:**

- **Learning Outcomes** articulate the knowledge and skills you want students to acquire by the end of the course
- **Assessments** allow the instructor to check the degree to which the students are meeting the learning outcomes
- **Instructional Strategies** are chosen to foster student learning toward meeting the learning outcomes

## **What are the benefits and potential problems of Learning Outcomes?**

### Benefits:

1. Help explain more clearly to students what is expected of them and thus helps to guide them in their studies.
2. Help faculty to focus more clearly on what exactly they want students to achieve in terms of knowledge and skills.
3. Help faculty define the assessment criteria more effectively.
4. Help to provide guidance to employers or external agencies about the knowledge and understanding possessed by graduates of programs.

### Potential Problems:

1. Set artificial boundaries on learning.
2. Assessment-driven curriculum.

### **RESOURCES:**

<http://www.ncgia.ucsb.edu/education/curricula/giscc/units/format/outcomes.html>

[http://www.bcit.ca/files/idc/pdf/ja\\_learningoutcomes.pdf](http://www.bcit.ca/files/idc/pdf/ja_learningoutcomes.pdf)

<http://www.uoguelph.ca/vpacademic/avpa/pdf/LearningOutcomes.pdf>

<http://library.iated.org/view/OLSEN2013DOC>

[http://www.saea.uottawa.ca/cpu/index.php?option=com\\_k2&view=item&layout=item&id=228&Itemid=&lang=en#1](http://www.saea.uottawa.ca/cpu/index.php?option=com_k2&view=item&layout=item&id=228&Itemid=&lang=en#1)