

Writing Program Level Learning Outcomes

Learning outcome statements that describe what students should know, be able to do and value by the end of a module.

Learning outcomes should:

- Complete a phrase describing **what students should know and/or be able to do** by the end of the program or course (e.g. “By the end of this program, students will be able to...”).
- **Start with an action verb** that specifying the depth of learning expected, followed by a statement describing the knowledge and abilities to be demonstrated, and finally a statement (or statements) to provide context within the discipline.
- **Be concise, direct and clearly stated.** Terms such as know, understand, learn, appreciate and to be aware of should be avoided, and the specific level of achievement should be clearly identified.
- **Be observable and measurable.** LO must be capable of being assessed, based on clearly defined criteria associated with the teaching/learning activities and assessment strategies contained within the curriculum.
- **Be balanced.** If the LO is too broad, it will be difficult to assess. If the list of learning outcomes is long and detailed, it may limit flexibility and adaptability in the curriculum.
- **Be grounded within the discipline, and consistent with disciplinary language, norms and standards.**

<p>action verb to identify the depth of learning expected (e.g. identify, explain, apply, analyze, evaluate, create)</p> <p style="text-align: center;">+</p> <p>statement specifying learning to be demonstrated (e.g. what?)</p> <p style="text-align: center;">+</p> <p>statement(s) to give disciplinary context and/or state how learning will be achieved (e.g. why, how?)</p>

Improving program level learning outcomes

Before	After
Students will be able to develop effective communication skills.	Students will be able to clearly <u>communicate</u> economic arguments in appropriate written, oral and visual forms with the correct use of supporting evidence (including formulas, figures and citations).
Students will demonstrate personal and professional integrity.	Students will be able to critically <u>reflect</u> upon their own behaviours and actions, as they relate to their personal ethics and the teaching profession.
Students will understand scientific research.	Students will be able to critically <u>evaluate</u> and accurately <u>explain</u> scientific information, including original scientific research from primary literature.
Students will be able to critically analyze texts.	Students will be able to reference relevant cultural and historical information to <u>analyze</u> a literary text.

Resource: Questions for reviewing learning outcomes

1. Do they accurately describe what a graduate should know, value and be able to do? Are there any specific statements that should be added, consolidated and/or removed?
2. Do the learning outcomes align with those defined by the institution and/or other related programs?
3. Do the action verbs adequately convey an appropriate level of understanding for each learning outcome?
4. Could multiple audiences (e.g. students, instructors, employers, administrators, across institutions) understand the learning outcomes?
 - If not, how could the clarity of the learning outcome be improved?
5. Would the discipline be clear if the statement were read in isolation?
 - If not, what additional detail could be added to provide additional disciplinary context?
6. Could you appropriately assess each outcome?
 - If not, how should they be revised? What additional detail/context is required?

Cognitive Domain

This framework is useful for writing learning outcomes when you want your students to acquire knowledge or develop intellectual abilities.

Taxonomy	Definition	Verbs	Examples
Remembering	Recall or recognize knowledge or information from memory	Define, describe, identify, list, recall, recognize, reproduce	Identify the tissue types found in the human body. Recognize the main uses of the Spanish verb “ser” in the present tense. List the subfields of anthropology.
Understanding	Construct meaning through interpreting and explaining	Classify, compare, differentiate, distinguish, exemplify, explain, illustrate, infer, interpret, relate, restate, summarize, translate	Explain the functions of tissue types found in the human body. Distinguish the main uses of the Spanish verbs “ser” and “estar” in the present tense. Summarize theoretical and methodological differences among the subfields of anthropology.
Applying	Use concepts and carry out methods in novel situations	Adapt, calculate, implement, interpret, manipulate, modify, practice, predict, restructure, solve, transfer, translate, use	Predict the impact of sport-related injuries on musculoskeletal function. Implement the Spanish verb “ser” in the present tense to speak about profession, nationality, origin, and noun descriptions. Interpret human behaviour in the past and present using an anthropological perspective.
Analyzing	Determine the nature and relationship of distinguishable parts of theories, concepts, or materials	Attribute, calculate, compare, contrast, debate, deconstruct, deduce, differentiate, examine, inquire, investigate, organize, question	Investigate how environmental and socioeconomic factors influence recovery from sport-related injuries. Examine the grammatical and syntactical structure of a sentence with the verbs “ser” and “estar” in Spanish. Deconstruct racist notions about human difference using anthropological research and understanding.

Taxonomy	Definition	Verbs	Examples
Evaluating	Making judgements based on criteria or standards to justify a stance or decision	Argue, appraise, assess, conclude, critique, decide, defend, judge, recommend, support, validate	<p>Assess treatment protocols for sport-related injuries.</p> <p>Defend a syntactical order for formulating affirmative or negative sentences using the Spanish verbs “ser” and “estar” from a set of examples.</p> <p>Support alternative sides to key debates in anthropology using scholarly evidence.</p>
Creating	Generate new meaning or recognize new patterns to produce something original	Combine, compose, construct, design, develop, devise, formulate, generate, hypothesize, imagine, invent, plan, produce, propose	<p>Design specialized treatment protocols for sport-related injuries.</p> <p>Develop affirmative and negative sentences using the verbs “ser” and “estar” in Spanish.</p> <p>Collect and interpret data on human behaviour/culture.</p>

References

- Anderson, L. W. & Krathwohl, D. R. (Eds.). 2001. *A taxonomy for learning, teaching, and assessing: A revision of Bloom’s taxonomy of educational objectives* (abridged edition). New York, NY: Longman.
- Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals, by a committee of college and university examiners. Handbook I: Cognitive Domain*. New York, NY. Longmans Green.

Affective Domain

The affective domain describes five levels of learning outcomes related to students' feelings, emotions, and attitudes towards phenomena studied in class (e.g., ideas, beliefs, values, social practices/customs).

Taxonomy	Definition	Verbs	Examples
Receiving	<p>Willingness to attend to particular phenomena (ideas, beliefs, values, social practices/customs).</p> <p>Ranging from simple awareness that a thing exists to selective attention on the part of the learner.</p>	look, watch, listen, hear, be aware of, experience, identify	<p>Listen openly to discussions on issues that involve different perspectives (e.g., on politics, religion, social care, etc.)</p> <p>Identify individual differences in opinions, beliefs, and values regarding disciplinary content/concepts.</p>
Responding	<p>Active participation with and reacting to phenomena.</p> <p>Ranging from acquiescence in responding (reads assigned material), willingness to respond (voluntarily reads beyond assignment), or satisfaction in responding (reads for pleasure or enjoyment).</p> <p>The higher levels of this category include instructional objectives that are commonly classified under "interest"; that is, those that stress the seeking out, engaging in, and enjoying particular activities.</p>	acknowledge, contribute, discuss, participate, practice, present, question, respond, react, read, reply, seek	<p>Read about social practices different from one's own (e.g. marriage practices, child-rearing, care of elderly, etc.)</p> <p>Question new ideas and concepts in order to fully understand them.</p> <p>Practice inciting emotion through artwork or performance.</p>
Valuing	<p>The worth or value a student attaches to phenomena, objects, or behaviours.</p> <p>Ranging from acceptance of a value (desires to improve group skills) to commitment (assumes responsibility for the effective functioning of the group). Valuing is based on the internalization of values, but clues to this internalization are expressed in the student's behaviour. Learning outcomes in this area are concerned with behaviour that is consistent and stable enough to make the value clearly identifiable.</p>	accept, complete, demonstrate, express, initiate, lead, propose, share, show, take, work	<p>Demonstrate an appreciation for the discipline by ... (e.g., engaging with tasks, with peers, through self-reflection, etc.).</p> <p>Complete an ethics proposal for a research project.</p> <p>Express evidence-based opinions in disciplinary discussions.</p> <p>Lead a team that respects individual strengths and diversity.</p>

Taxonomy	Definition	Verbs	Examples
	<p>Instructional objectives that are commonly classified under “attitudes” and “appreciation” would fall into this category.</p>		
Organizing	<p>Bringing together different values, resolving conflicts between them, and building an internally consistent value system. This involves comparing, relating, and synthesizing values.</p> <p>Ranging from the conceptualization of a value (recognizes the responsibility of each individual for improving human relations) to the organization of value systems (develops a vocational plan that satisfies her need for both economic security and social justice).</p> <p>Instructional objectives relating to the development of a philosophy of life would fall into this category.</p>	<p>arrange, combine, compare, create, defend, explain, integrate, justify, modify, relate, synthesize</p>	<p>Synthesize differing perspectives on international education.</p> <p>Compare solutions to poverty by examining historical and modern approaches.</p> <p>Integrate cultural and medical models of wellness to address an aspect of healthcare.</p> <p>Justify a plan for social action on a chosen global change issue.</p>
Internalizing values/ Characterizing	<p>Student has a value system which influences their behaviour. Thus, behaviour is pervasive, consistent, and predictable.</p> <p>Instructional objectives that are concerned with the student’s general patterns of adjustment (personal, social, emotional) would be appropriate here.</p>	<p>act, adopt, behave, conduct, critique, influence, practice, resist, resolve, use</p>	<p>Adopt and reflect on behaviours that lower your ecological footprint.</p> <p>Conduct disciplinary research in an ethical manner.</p> <p>Use a disciplinary lens to critically question... (e.g., personal assumptions, current events, representations of minorities in the media, scientific research, etc.)</p>

References

Krathwohl, D. R., Bloom, B. S., and Masia, B. B. (1964). *Taxonomy of educational objectives, Book II. Affective domain*. New York, NY. David McKay Company.

Psychomotor Domain

The psychomotor domain includes physical movement, coordination, and use of the motor-skills areas.

Taxonomy	Definition	Verbs	Examples
Observe	Students observe and begin to describe models of behaviour. Students recognize standards or criteria important to perform a skill or task correctly.	check, detect, hear, identify, observe, see, smell, taste, touch, notice, perceive, recognize, describe, document	Observe a nurse preceptor conduct catheterization and identify the key steps involved. Identify the key steps involved in collecting a non-destructive tree core sample. Observe a musical performance and identify correct posture and technique.
Imitate	Students begin to pattern behaviour after models and standards.	attempt, copy, demonstrate, follow, imitate, mimic, repeat, replicate, reproduce, trace, model, reenact, reproduce, try	Reenact the steps involved in assessing vital signs on a mannequin. Attempt to take a lake sediment core sample by mimicking the steps demonstrated by the instructor. Practice replicating proper form when sprinting based on models presented in class.
Respond	Students are able to incorporate outside feedback to improve skill development.	adapt, adjust, alter, calibrate, change, correct, develop, improve, incorporate, modify, practice, revise,	Adjust their approach to completing a focused physical exam of a patient with specific symptoms based on instructor and peer feedback. Respond to expert feedback about water sampling techniques by adjusting their approach to sampling and asking clarifying questions as needed. Incorporate masterclass feedback to improve choral conducting techniques.
Refine	Students evaluate their own performance and make corrections and adjustments.	calibrate, customize, detect, differentiate, discriminate, distinguish, manipulate, recognize, refine, reflect, select, address	Create a portfolio of acquired clinical skills and identify areas and strategies for future development. Reflect on the successes and failures of their own sampling strategy in their field notebook, including identifying strategies for improvement. Identify, implement, and reflect upon the effectiveness of specific strategies for increasing their own movement efficiency.

Taxonomy	Definition	Verbs	Examples
Internalize	Performance becomes second-nature or natural. Students can perform in a real life situation.	create, design, invent, compose, perform, produce, implement, execute, master	<p>Administer medications safely according to practice and legal guidelines.</p> <p>Create and efficiently implement a biogeographical field sampling strategy using common tools in the course, including quadrats and measuring tapes.</p> <p>Independently select, rehearse, and perform a program of music for a public audience.</p>
Coach	Students are able to instruct or train others to perform this skill in other situations.	demonstrate, illustrate, model, instruct, teach, train, give feedback, coach, lead, facilitate	<p>Role play coaching a patient in changing their drainage tube dressing at home.</p> <p>Train a classmate to use their field sampling strategy by modelling the approach, observing the trainee attempt, and providing feedback.</p> <p>Plan and lead a small group lesson on a specific musical instrument.</p>

References

- Harrow, A. (1972). *A taxonomy of psychomotor domain: A guide for developing behavioral objectives*. New York: David McKay.
- Simpson, E. J. (1972). *The classification of educational objectives in the psychomotor domain*. Washington, DC: Gryphon House.